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**DYSARTHRIA SPEECH DISORDER ANALYSIS AS SEEN IN *THE THEORY OF EVERYTHING* FILM BY JAMES MARSH**

Irwansyah<sup>1</sup>, Ulfatmi Azlan,<sup>2</sup> Yenti<sup>3</sup>

UIN Sultan Thaha Saifuddin Jambi

E-Mail: [yenti@uinjambi.ac.id](mailto:yenti@uinjambi.ac.id)

**Abstrak**

*Dysarthria is a type of motor speech disorder such as slurred speech and sometimes difficult to understand due to problem in articulation. ALS influence speech ability through every nerve that was controlling to the complex of speech organ problems. The researcher used three theories to analyze the data, dysarthria from Joseph R. Duffy (2013), articulation from George Yule (2010), and speech impairments from William Lee Heward (1996). The researcher used qualitative research by Ranjit Kumar (2011). Meanwhile, in data collection techniques, the researcher used documentation techniques by Sudaryono (2006). In the process of analyzing data, the researcher used descriptive analysis method from Creswell (2009). The researcher aim to represent valid data based on the findings that has analyzed. The results in dysarthria research, the researcher had found out thirteen data from five kinds of dysarthria experienced in main character is Stephen as a sufferer of ALS, they were; two flaccid, three spastic, two ataxicg, four hyperkinetic, and two mixed. The dominant problem of dysarthria is hyperkinetic that affected by speech organ functions of ALS disease. The researcher had found seven data to identify the articulation influence to speech impairments associated with dysarthria, they were; five speech sound disorders influenced by failures in the articulation that affect in loss/weakness of sound with difficulty to speech movements, and slurred speech. Two fluency disorders that influenced by abnormalities in speech motoric like as uncontrolled/broken and excessive tension in speech*

مستخلص

البحث

**Abstract**

**Kata Kunci:** Speech Disorder, Dysarthria, Main Character.

كلمات

**INTRODUCTION (مقدمة)**

Communication problems can be linked to an analysis study in psycholinguistic studies. The terms of psycholinguistics is a mixture of psychology and linguistics, which explores more deeply the relationship between language and the human mind (Field, 2005:2). Psycholinguistics also defined as simple as the study of human language, language comprehension, language production, and language acquisition (Hatch, 1983:1). So, psycholinguistic is one of the linguistic science studies about the relation between psychological factor and the linguistic aspect of the human mind to understand language within the communication.

Amyotrophic lateral sclerosis (ALS) is a progressive neuron in physically that cause non-inflammatory, degenerative and fatal disease over the time. This disease of ALS affect to the motor neuron, start from the brain to spinal cord due nervous system and speech muscles. Degeneration causes weakness and wasting away in the muscles that supplying the limbs of body organ, face and throat, with consequent problems of slurred speech with interfere to moving of the mouth (MJ,ed, 1983 :55-58).

The terms of dysarthria is a principal name for a group of neurologic speech disorder that abnormalities in the strength of speech, speed rate of speech, range, speech balance, tone, or accuracy of movements required for the articulatory, breathing, phonatory, resonatory, or prosodic aspects of speech produce. The responsible neuropathologic it happened from disturbances of control or execution are due to one or more sensorimotor abnormalities in speech, which most often are weakness, spastic, incoordinated, involuntary movements, or excessive muscle speech, reduced of speech movements or variety muscle tone (Duffy, 2013:24). This inability may result from damage to various components of the central nervous system (Lebrun, 1997:4). In this case, the patient assessed on word or sentence in speech intelligibility as well as on overall slurred speech. In linguistically, it recognized that speech impairments such as articulatory is the subject in cases of dysarthria, though of phonological aspect nevertheless offers a useful framework in which to identify speech error patterns (Edwards, 1984:107).

The problem in speech production is when someone has impairment in speech. It speech disorder of dysarthria that has difficulty in communication. This occurs in individuals itself such as have an illness or neurologic disease, not in a community or in support of this situation (Fitzgerald :1986). here are several speech errors that can occur at several levels in speech production, namely during lemma, grammatical and phonological, and as well as articulation (Levelt, 1993:3).

## THEORITICAL FRAMEWORK (نظريات)

### a. Dysarthria

Duffy stated that dysarthria is a neurologic speech disorders that reflect abnormalities to speech that comes from a neurologic group of speech affecting to the clarity of speech due speech production. This dysarthria is a neuropath-physiologic disturbance of control or execution, which is responsible for weakness, spasticity, incoordination, involuntary movements, excessive or reduced variable muscle tone, each of them divided into several kinds of dysarthria. In each kinds distinguished in terms of character, and presumably, the characters kinds of dysarthria caused by implications related to nervous system localization (Duffy, 2013 :24) . Dysarthria can occurred for all ages, it commonly people born with cerebral palsy (CP) or muscular dystrophy and adults who have experienced a stroke, tumor, or degenerative disease. People with dysarthria may experience speech issues ranging from only a slight harshness to an inability to speak at all. Speech characteristics of dysarthria can make speech are slow, slurred, and difficult to understand due to errors in the articulation of consonants (Lanier, 2010).

### b. Kinds of Dysarthria

According Duffy there are seven kinds of dysarthria associated of pathophysiology classified as flaccid, spastic, ataxic, hypokinetic, hyperkinetic, uumn, and mixed( Duffy, 2013). There are as follows:

#### 1. Flaccid

Flaccid dysarthria is a type of flaccid speech disorder caused by damage to the cranial motor nerve units or the spine that serve the speech muscles. The main effect of flaccid dysarthria caused by **weakness** and **reduce of muscle tone** affect to the nerves of command signals between the brain and the response of muscle movement becomes

inconsistent, and the characteristics of speech to be soft and abnormal. The impact of weakness in the jaw can affect breathing, weakness in the vocal cords, and articulation.

## 2. Spastic

Spastic dysarthria happened from bilateral damage to direct and indirect activation pathways in upper motor neurons or spasticity. Spastic dysarthria is largely a matter of neuromuscular command, as opposed to planning, programming, or control. Its characteristics reflect the combined effect of **weakness** with **spasticity** in a way that slows down its motion and reduces its range and strength. Problems with spasticity usually caused by excessive muscle effort leading to weakness in speech. Reducing of excessive muscle effort can effect of muscle weakness of the motor nerves and disrupts movement patterns at all levels of speech production becomes slow and hoarse.

## 3. Ataxic

Ataxic dysarthria largely reflects problems with motor control. It is perceptual features illustrate the important role of the cerebellum and it is connections in such control. Among individual dysarthria, this most clearly reflects to **incoordination** with disruption of timing. The speech of **an ataxic dysarthria not based on the weakness**, but the incoordination of speech that result in inaccuracies in speech style, misdirected speech, and breakdown timing. It is similar to a slurred or a drunk person because the individual says a sentence that is over a controlled time limit, resulting in sometimes a prolonged phoneme.

## 4. Hypokinetic

Hypokinetic dysarthria often occurs in the basal ganglia, which is different from other kinds of dysarthria. The disturbance reflects the effects of **rigidity**, reduced strength and range of motion, limited range of motion, and slow but sometimes fast repetitive individual movements on speech. Patients or, more often, those closest to them often complain that their voice is weak or calm, and sometimes their speech rate is too fast. They may also not fluency and difficulty initiating speech.

## 5. Hyperkinetic

Speech traits deviating from hyperkinetic dysarthria reflect the abnormal sound that the effect of speech **involuntary movements** that are not normal or irregular, rapid or slow. Impaired tone of voice resulting in frequent movement of the jaw, face, and tongue. In combination sometimes, only one speech structure is involved. Patients often

experience tremors in speech, chorea (neurological disorders to uncontrolled speech movements), torticollis spasmodic (neck bending pain), and spasmodic dysphonia (speech abnormal movements of the sound by the vocal cords), this causes abnormalities in speech from a perspective to be limited to phonatory functions.

#### 6. UUMN

Unilateral Upper Motor Neuron dysarthria, as termed UUMN is associated with damage to the upper motor neuron pathway, as termed UMN, that they are carries impulses to the cranial and spinal nerves that reflect the effects of **weakness** and sometimes **spasticity** or **incoordination** on speech movements. Both of them kinds occurred at a frequency comparable to other kinds of single major dysarthria. The distorted characteristics primarily reflect the effects of weakness and sometimes spasticity or incoordination on speech movements.

#### 7. Mixed

Mixed dysarthria is a type of dysarthria that extend from individual type or more than one type attached. They occur were **more than one** specific parts associated by damaged of the motor nerve with mixed dysarthria. The problem predictable but sometimes different from the other kinds (Duffy, 2013).

### c. Phonology

Phonology is the study description of the system and patterns of speech sound formed in a language. Based on a theory, it effect to every speaker that unconsciously knows about the sound patterns in a language (Yule, 2010:42). Linguistically, the term phonology was the second term is articulation that moved into words to identify the speech problem (Bernthal, ed, 2017:3) . In speech production, articulation refers to the movement of muscles and speech organs necessary to produce various speech sounds (Bernthal, ed, 2017:285).

#### 1. Places of Articulation

According to Yule, the terms used to describe many sounds are those which the mouth can be constricted denote the place of articulation of the sound, those are bilabials, labiodental, dentals, alveolar, palatals, velar and Glottal with the definitions of every parts (Yule, 2010:27).

##### a. Bilabials

These are sounds formed using both upper and lower lips. The initial sounds in the words *path*, *bat*, and *match*. They are represented by the symbols (p) which is voiceless, and (b) and (m) which are voiced.

b. Labiodental

Labiodentals are sounds that formed with the upper teeth and the lower lip. The initial words of labiodental are *fat*, *save*, and *vat*. These symbols (f) is voiceless and (v) is voiced.

c. Dentals

Dentals are sounds that formed with the tongue tip by touching behind the upper front teeth. They representing by the symbol of dentals of [θ], it usually called theta. The second symbol called [ð] like *the* and *there*.

d. Alveolar

It sound formed with the part of the tongue on the alveolar ridge and above the upper teeth. The symbols with the initial sounds [t, s] it may sound are *too*, *sue* are voiceless. In addition, other sounds [d, z, n, l, r] for example *door*, *zoo*, *look*, *row*, all voiced.

e. Palatals

Palatals is sound which are produce with the tongue and the palate. The sounds refer to palatals are sh, and ch. The other sounds are *dj* and *j*. For example, the example for word *church* the initial [ʃ] is a part of alveolar but the final sounds is [tʃ] is voiceless, [ʒ] *pleasure*, [dʒ] *badge*, voiced and [j] *yes* is voiced. For example, the word *watch* by the end of /ch/, but the sound /ch/ is uttered wat/ch/ is a part of palatal.

f. Velar

Velar is the sounds that produce with the back of the tongue against the velum. The symbols or sounds include in velar is [k] for *kid* or *kick*, [g] for *go* or *gun* and [ŋ] for *angma*. For example, the sound [k] in the word *kitchen* utters, as /k/ in the sound /k/ is palatal.

g. Glottal

In the glottal, there is one of the sounds when the air passes through the glottis or produce without active use of the tongue and other parts of the mouth. The sounds Glottal is (h). For example, the word *what* that the letter /w/ is a part of bilabial, but it uttered as *hwat*.

#### d. Speech Impairments

According Heward stated that the definition in speech impairments is caused when speech deviates more differently from normal speech in ordinary people, this study can be used to analyze when the person get; need people to understand his or her speech, communication disorders, or difficulty understanding the words of the speaker or listener. There three basic types of speech impairments, they are; speech sound disorders (errors in the articulations), fluency disorders (difficulties with the flow or rhythm of speech), and voice disorders (problems with the quality or use of one's voice) (Heward, 1996:283).

##### 1. Speech Sound Disorders

Many speech-sound disorders or articulation disorders are not to use in faulty of speech mechanism, but they directly related to find problems in recognizing or processing the sound of components language. There four basic skills of speech sound disorders influenced of the articulation (Heward, 1996: 285).

##### a. Substitution

Sound is replacing with another sound, this happens due to a shift in phonemic contrast in the resulting speech. For example, in the word "*rabbit*", the phoneme changes to "*wabbit*".

##### b. Omission/deletion

Omission is a certain missing sound in the speech, or one of the missing consonants, this occurs with speech problems in the emphasis of intonation, and caused by disturbances in breathing or improper sound. Suppose the word "*doesn't it?*" becomes "*hesn't it?*"

##### c. Distortion

Where the sound in the word shortened, this caused by the person speaking slurred, or another influence is the weakness in the syllable of the word shortened. Suppose that the word "*equation*" becomes "*quesyen*".

##### d. Addition

Addition is an addition in a spoken word that is one or more letters, usually the sound in the pronounced letter extends from the root word. Suppose the word "*what*" becomes "*hwat*" or "*glow*" becomes "*gellow*".

##### 2. Fluency Disorders

The type of this speech usually makes use of rhythm and timing. The problem with fluency mostly occurs when the words and phrases flow easily, with speech deviations in speed, stress and pauses. Fluency disorders are “disturbances in the movement of speech characterized by atypical speed, rhythm, and repetition in sounds, syllables, words, and phrases. This may be accompanied by excessive tension/rigidity of speech, struggling behavior, and secondary attitudes (Heward, 1996: 286).

### 3. Voice Disorders

The two basic types of sound disorders involve phonation and resonance. *Phonation disorders* cause voices to sound tight, hoarse, or tense most of the time. In severe cases, there is no sound at all. Phonation disorders can be caused by organics or the illness of the vocal cords; but hoarseness most often comes from chronic vocal abuse, such as screaming, imitating voices, or the habit of speaking in tense. Breathless voice is unpleasant due to low volume and failure to properly utilize the vocal cords. A voice with *resonance disorders* is characterized by too many sounds coming out of the nasal airways or hypernasality (Heward, 1996: 287).

## METHOD (طريقة \ منهج البحث)

### a. Design of the research

In this research, the researcher uses descriptive qualitative research. It is suitable that qualitative research is analyzing about observed conditions of the object that will be analyzed that aimed at a well interpretation or understanding of anything. The descriptive data, which is, collected in the form of the object where it is written and spoken can be an acceptable way to find the answers.

### b. Source of the data

The data source from this research was *The Theory of Everything* is a 2014 biography film in Britain directed by James Marsh. The source for this film was taken from the internet, duration 2:3:25 totally. Starring the main character is Eddie Redmayne as Stephen Hawking diagnosis with fatal illness ALS that ravage to his body and speech disorders. The researcher uses the script, dialogues, and scene to analyze and explain with the psycholinguistic aspects as seen in the main character during the progress on his communication.



### c. Technique of data collection

In this research, the researcher used documentation as technique of collecting data to find the answer. It can implied that documentation is to get information that identified with the object of the exploration.

### d. Technique of data analysis

After collecting the data, the researcher analyze the data distinctly related to kinds of dysarthria in both a movie and script into some notes and decides of valid data based kinds of dysarthria in main character. Technique in the data, the researcher used descriptive.

## FINDINGS & DISCUSSION (بحث ومناقشة)

In this section, the researcher will explain and analyze the kind of dysarthria, and the problem of the articulations in dysarthria speech disorder. There was not only consistent with the results of speech that make intelligible speech movements, but also several factors that damage the motor speech control. Such as any damage in ALS affect to intelligible speech, it raised from kinds of dysarthria. Based on the film *The Theory of Everything* as the source of the data Stephen as a sufferer speech disorder with dysarthria. During analyze the data; the researcher also analyzed the speech of dysarthria related with the problem in articulation. The researcher had two theories mixed to identify the problem of articulations in speech impairments as the purpose analyzed.

### Kinds of Dysarthria

#### a. Flaccid

After his examiners went smoothly without question, his lecturer asked Stephen about the next level.



Dennis : *So, what next?*

**Stephen** : *Prove it. To prove with a single equation that time has a beginning. Wouldn't that be nice, Professor? The one simple, elegant equation to explain everything.*

In this speech, some words of his speech sometimes cannot to speak clearly, because Stephen affected by weakness of his voices or flaccid dysarthria. From the word “**professor**” become “*professah*”, this word as an example of flaccidity with the breathiness of voice. But there from the words “**simple**” this continuous breathiness from glottal sound “**h**” was inserted to word “**simp(h)le**”, it sound becomes “*simplh*”, and word “**everything**” become “*everythih*”. From these words marked above categorized into flaccid, because these sound breathiness begins from lungs. The effect of weakness sensation of sound in final words influence to speech organ area that make his sound to be softly and abnormal.

#### **b. Spastic**

When Stephen is motoring along with his professor. While his professor talking about Stephen and they step aside to make way.



**Dennis** : *What did you bet him?*

**Stephen**: *A one-year subscription* to a magazine.

From the sentence, “**A one-year subscription**” is a type of spastic. When Stephen begun to speak “**A one-year**” there a pause word by word and move the vowel between “one-year” is hardly, it caused that his speech movements was disruption. The excessive muscle efforts were leading to weakness on his speech. Then the words previous are effect to a word “**Subscription**” that his speech reduced in strength. Actually, for this word “**subscription**” was irregular forms and becomes “**subs(-cr)iption**”, that letters “**-cr**” was unable to pronounce, it sound become “*subs-iption*”.

In this problem, there a brief pause that make his speech was spasticity that influenced by the executing of motor control on his speech movements.

### c. Ataxic

When Jane helps Stephen to wear his pyjama top, she was struggling to pull it down over his head, but just only wearing it halfway. Suddenly their baby is crying, then Jane going to check their baby. For a second, Stephen to be panic when see the fire inside of his pyjama. While Stephen going to imagine about black-hole was formed. After that, his pyjama was wearing by Jane and back into the real world. Stephen got inspiration about his discovery.



**Stephen:** *Jane?*

**Jane** : *Oh, Stephen. Oh. Hello...*

**Stephen:** *I've got an idea. Jane... Jane, I've had an idea.*

Stephen has imagination about the form of black-holes theory after see on fire behind his pyjama, then Stephen calling Jane that he just got about his theory. From word "**Jane**," that Stephen uttered, it becomes "**Ja**" is an example of ataxic which is the letter "**n**" in accordance with difficulty initiating to stress this word. For Stephen's speech condition, he impatient to calling Jane, then he continued to utter the sentence "**I've had an idea**" become "**I-had'n idea**", Stephen speech was slurred and shorted in words **I've** or origin word "**I have**", that his speech was imprecisely in the letter "**v**". It caused by reduce of muscle tone that make his speech slurred and involved by incoordination of speech movements.

### d. Hyperkinetic

Stephen is having dinner with Jonathan. Jonathan begins the conversation about Stephen's discovery. Then, Stephen wants to show off his new discovery to Jonathan.



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**Stephen:** *Seems he not only plays dice, but he throws them where we can't find them.*

Before Stephen interrupts the dialogue between Jane and Jonathan. Stephen started the conversation with severe for initiating his speech. It caused from his face lifting before begin to speak. From speech "**he not only**" become "*z'zeozoly*" and "**where we can't find them**" become "*whe we cham vinzm*", they were examples of hyperkinetic dysarthria that his speech was involuntary movements with increased rate. From the sentence "**but he throws them**", this speech has illustrated become "*bu'z hezhow zem*", his speech was categorized into hyperkinetic. Because, in the word "**but**" is paused, his speech gets *chorea* that abnormalities in speech movements. It caused by neurological disease of ALS worsened, it seemed from his speech movement is repetitive for letter "**z**". As a result, Stephen's speech was very difficult to understand that damage of the neurologic disease that was seriously.

#### e. Mixed

When Stephen rested and while reading a book, Brian came to see Stephen and ask about his situation.



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**Brian** : *Sorry?*

**Stephen:** *It does sound odd when you say it out loud, doesn't it?*

**Brian** : *What do you mean? No, you don't. What did they say?  
Sorry, I don't really....*

**Stephen**: *Will you go, Bri?*

The sound for words “**It does**” become “*Hdos*” and “**doesn't it?**” become “*hesit?*”, there were the example of weakness in speech sound, it distorted by abnormal in speech movements. The abnormalities in this speech, it seen from the characteristics that his speech was disturbed with weakness and breathiness voice. For the words “**you say it out loud**” this speech sound become “*hesaudoud*”, it also a group dysarthria in incoordination of speech, so that it looks out of tune, such as reducing the range of the speech movements. As a result, the weakness of phrase in words from this sentence make the listener difficult to understand of his speech.

## The Influence of Dysarthria toward Articulations

### a. Speech Sound Disorders

#### - Omission

**Stephen**: *We can't afford a **live-in** nurse.*

From the example above tell about the word “**r**” has an error meaning in the word “**nurse**”. Based on the sound rules, the sound “**nuuc**” is a broken word that Stephen was difficult to spell the letter “**r**”, this letter is a part in Alveolar. It caused by Stephen speech is too short, because the sound letter “**r**” was saying in silent voice from this way because it influenced by *the weakness* in certain word that make *slurred speech*, so this word categorized into Omission.

### b. Fluency Disorder

**Stephen**: *Seems **he not only** plays dice, but he throws them where  
we can't find them.*

From the dialogs above, Stephen speech was too badly. Actually, there several pauses when he says, “**seems (pause) he not only plays dice, but (pause) he throws them (stress) where we can't find them**”. When Stephen utters “**he not only**” it sounds like “*z'zeozoly*”, because the speech was not fluency of disease. It can be proved that Stephen indicated with fluency disorder that his speech more repetitive for alveolar

in the letter “z” in “z'zeozoly” from the words “he not only”. From the problem above, it can be concluded that Stephen is cannot control his speech motoric of movements, it means there is disturbance in the flow of speech, sometimes burst in speech with excessive tension.

## CONCLUSIONS (خلاصة \ خاتمة)

In research, the conclusion from The Theory of Everything film by James Marsh that dominated from the most problem in dysarthria is hyperkinetic that related to ALS disease that Stephen experienced. In addition, the researcher also discussing the problem of the articulation in various types of dysfunction involving speech impairments.

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