

# **A systematic review of dysarthria in Multiple Sclerosis**

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## **Abstract**

Multiple sclerosis (MS) is one of the most common chronic, inflammatory, progressive disease of the central nervous system (British Medical Bulletin, 2010), leading to degradation of the myelin sheaths surrounding neurons (Nylander & Hafler, 2012), this demyelination resulting in forming plaques that disrupt and damage the nerve conduction with various consequences depends on the site of lesions (Nylander & Hafler, 2012), and as the person gets older it increasing disability .

Prevalence varies (< 1 to 193 per 100,000) depending on ethnic and geographical variables (Rosati G, 2001) . MS usually starts in early adult life. Once the disease present it never goes, there is no cure and the patient lives with the diagnosis for the rest of life, the route and prognosis for MS are unpredictable, so as a result it creating depressing changes in the lives of MS patients and their families (Knight, R. G. (2013). Many people with MS, have little trouble and symptoms, but for others patients it causes problems that exert a profound effect on the person's quality of life (Mult Scler, 2003).

The disease is characterized by relapses and remissions depends on attacks number and extent , while the pathology and symptom pattern of MS disease is very variable and varied (Finger, S. (1998). that they include virtually the whole field of neurology, in about two-thirds of patients the symptoms come and go spontaneously (exacerbation and remission). In the remaining third, the course is progressive (Perry A,1982).

One of the the common symptoms is sensorimotor changes that affecting bulbar and spinal function (speech and walking) as well as cognition problem , coordination, vision, tiredness, depression, sadness , and pain . Communication problems are also common in MS but they are typically mild.(Yorkston & Baylor, 2012). Dysarthria is the most common expressive communication deficit presenting in MS patients (Hartelius, L., Runmarker, B., & Andersen, O. 2000). Dysphonia, which is a voice disorder, also can co-occurs with dysarthria in individuals with MS sometimes.

Dysarthria commonly defined as a motor speech disorder caused by impairment to the efferent pathways that innervate the muscles associated with speech production due to neurological damage (Duffy, 2013). It is characterized by slow, weak, inaccurate, or disorganized movements of the speech musculature. These neuromotor dysfunctions impact the speech processes of respiration, phonation, articulation, and nasalization (Hartelius, L., Svensson, P., & Bubach, A. (1993).

The demyelinating lesions that caused by multiple sclerosis disease can result in spasticity, slowness, weakness, and ataxic incoordination of the lips, tongue, mandible, soft palate, vocal cords, and diaphragm. as a results , articulation, speaking rate, intelligibility, and natural flow of speech in conversation are more likely to be impaired in people with multiple sclerosis (Miller, P. H. (2008).

The individual with MS, their family member, or a healthcare professional may notice and identify these speech issues. Problems with articulation precision, speech intelligibility, conversational flow, speaking rate, loudness, and voice quality are all common complaints. When these problems intervene with a person's quality of life specially their ability to communicate for daily needs, a referral for assessment and treatment by a speech language pathologist is recommended (Netsell, R. (1984, November).

MS dysarthria has been characterized as spastic or ataxic. it has been discovered that between 40% and 50% of individuals living with MS are affected by it. (Duffy, 2013)