



# Prevalence and Risk Factors of Dysphagia in Patients with Multiple Sclerosis

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Received: 25 March 2020 / Accepted: 12 January 2021 / Published online: 12 February 2021  
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## Abstract

Dysphagia is one of the most common symptoms in multiple sclerosis (MS) patients. It can reduce the quality of life and increase the risk of mortality by developing complications such as aspiration pneumonia. The present study was conducted to estimate the prevalence of dysphagia in MS patients and investigate the associations between dysphagia and disease characteristics. The Persian version of the DYMUS questionnaire was used to assess dysphagia in 865 patients with MS, including 738 (85.3%) relapsing–remitting MS (RRMS), 106 (12.3%) secondary progressive MS (SPMS), and 21 (2.4%) primary progressive MS (PPMS). Also, demographic and clinical data, including age, sex, smoking status, Expanded Disability Status Scale (EDSS) score, disease duration, disease-modifying therapies exposure, initial symptoms of MS, were recorded. The mean (SD) age was 37.95(9.25) years, and 83.1% of the participants were female. The prevalence of dysphagia was estimated to be 25.4% among all patients. According to the DYMUS questionnaire results, the prevalence of dysphagia in RRMS, SPMS, and PPMS patients was 22.2%, 44.3%, and 42.9%, respectively. After multivariate analysis the current EDSS score (OR = 1.197, CI: 1.062, 1.350,  $p = 0.003$ ), cerebellar impairment (OR = 1.335, CI: 1.450, 4.716,  $p = 0.004$ ) and motor dysfunction (OR = 1.651, CI: 1.004, 2.715,  $p = 0.048$ ) emerged as the risk factors for dysphagia. Since dysphagia, as previously mentioned, is a common symptom in multiple sclerosis, particularly in SPMS and PPMS courses, active screening for this condition is recommended in all patients, particularly those with identified risk factors.

**Keywords** Multiple sclerosis · Dysphagia · Deglutition · Deglutition disorders · DYMUS questionnaire

## Introduction

Multiple sclerosis (MS) is an inflammatory demyelinating disease of the central nervous system with a chronic course [1]. It has different manifestations depending on the involved anatomic areas and onset of the disease [2–4]. Dysphagia is defined as the inability or difficulty in swallowing [5]. It is caused by the impairment of several structures such as the corticobulbar tracts, cerebellar, brainstem, and lower cranial nerves [6, 7].

The prevalence (percentage) of dysphagia in MS patients is estimated to be 21–90% [8, 9]. Aspiration pneumonia, dehydration, and malnutrition are among the most common complications caused by dysphagia, which can significantly affect the quality of life in MS patients [10, 11]. Disturbances in swallowing can be due to structural and non-structural dysfunctions of the brain, oral cavity, pharynx, and larynx [12]. The cranial nerves, including the trigeminal, facial, glossopharyngeal, vagal, and hypoglossal nerves involved

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