## COVID-19 outbreak impact on young movement disorder experts' work and educational activities

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**Introduction:** The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic impacted medical training and education globally, especially in most affected countries. It was important to rcognize the rapidly evolving challenges faced by hospitals and universities during the coronavirus disease 2019 (COVID-19) outbreak, upon which the structure of both the clinical and the educational activities has been obliged to be deeply changed.

The International Movement Disorder Society (MDS) Young Member Group (YMG) consisted of neurologists and health care professionals with interest in movement disorders and younger than 40 years and it actually represents about one third of the entire MDS community. We aimed to survey young physicians and health care professionals belonging to the MDS-YMG, to analyse the situation they are experiencing, to know how the educational system reacted to the pandemic and their satisfaction regarding the MDS virtual educational tools.

**Methods**: This was a web-based survey study. All MDS Young members were invited to participate through electronic mails. An online questionnaire-based survey created by the MDS Young Members Group Steering Committee and its senior chair (B.B.), was conducted between 15<sup>th</sup> June 2020 and 31<sup>st</sup> July 2020. The questionnaire consisted of 23 questions, divided into three sections including demographic/professional data, impact on educational and clinical activities and satisfaction regarding the MDS e-learning tools. The questionnaire contained multiple-choice questions and one open question for suggestions and comments.

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Results: 3802 members were invited to complete the survey and 288 completed it (13.2%), divided as following for each MDS section: 26.15% of the European section, 31.8% of the Pan American Section, 24.7% of the Asian and Oceanian section and 17.1% of the African section. Of note, about 30% of the answer came from US and about 10% from Brazil, that are two of the main affected countries. 72% had between 30 and 40 years, the rest between 20 and 30 years. Half of them (58.6%) were clinicians, with expertise in movement disorders. 42.8% have been involved in managing COVD-19 patients about 80% of them referred a moderate to severe impact of the pandemic to their possibility to visit patients with movement disorders. Phone calls were still the most used tool to reach patients (82%), even if telemedicine tools were used by 24%, though with difficulties in communication with patients reported by the most part of the members (71.2%). More than half of the participant (61.6%) referred a lack of clear protocol to manage movement disorder patients during the COVID-19 outbreaks. Educational activities were largely affected (78.2%), with complete interruption of the activities for more than 4 weeks among half of the participants. Virtual teaching sessions were attended by 62% of the members, though if usually less than one a week. The MDS educational materials were used by 62.% of the members and considered helpful by about 90%. Overall the used of MDS educational material is considered from moderately to extremely important.

Conclusions: Our results confirm the heavy impact that the COVID-19 outbreak had and continues to have on professional and educational activities of physicians and health care professionals interested in movement disorders, all over the world. Many young MDS members were directly involved in the management of COVID-19 patients. In spite of the recent advanced in telemedicine, progresses still need to be done to make it a widespread and feasible tool on a clinical routine setting. MDS educational resources reveals to be extremely relevant, reinforcing the idea that they should be continuously implemented and advertised, especially among the young MDS community. COVID-19 pandemic continues to pose challenges in terms of clinical care organization and educational needs and it has already imposed radical and irreversible changes of academic and health care activities.