

Impact of the Coronavirus Disease 2019 Pandemic on Functional Movement Disorders: Lessons From a Specialized Clinic

The coronavirus disease 2019 (COVID-19) crisis has had a major impact on healthcare systems and patients with movement disorders.¹ Functional movement disorders (FMDs) may affect up to 18% of patients evaluated in movement disorder units and can greatly affect quality of life.^{2,3} This study aimed to explore pandemic and lockdown consequences on patients with FMD.

An anonymous survey was designed (Typeform-platform) with 30 multiple-choice questions covering demographic (age, gender), social (employment, household characteristics, etc.), and clinical variables. Changes in exercise, therapies, sleep, mood, anxiety, and FMD were evaluated through 3-point Likert scales (more/better, unchanged, less/worse), and General

Health Condition (GHC) was assessed by a shortened Clinical Global Impression-Improvement (CGI-I) scale (items 1–5).⁴ Patients from our FMD clinic were informed about the study (via phone/e-mail) and given the survey link. All provided written informed consent, and the local ethics committee approved the study. Bivariable analysis and multivariable logistic regression analysis were performed to investigate associations between changes in FMDs and GHC and other variables using R software (3.6.2 version). Significance was set at $P < 0.05$.

Forty-one patients (53% of those contacted) participated: mean age, 39±11 years; 54% women; and disease duration range, 0 to >10 years. Most patients had a functional gait disturbance ($n = 18$, 44%) followed by dystonia ($n = 10$, 24%) and tremor ($n = 9$, 22%). Other demographic characteristics are reported in Table 1.

Most patients reported no change in their FMD ($n = 22$, 54%). Only 5 (12%) improved and 14 (34%) worsened during lockdown. However, about half of the patients reported being worse or much worse on GHC as per the CGI-I scale ($n = 20$), 15 (37%) remained stable, and 6 (15%) improved.

TABLE 1. Changes in FMDs and GHC according to demographic and clinical variables during the COVID-19 pandemic

	n	FMD			GHC			Adjusted <i>P</i> value
		Unchanged or better	Worse	<i>P</i> value	Unchanged or better	Worse	<i>P</i> value	
Demographic variables								
Sex, n (%)	F = 22(54) M = 19(46)	F = 15 (68) M = 12 (63) 12 (63)	F = 7 (32) M = 7 (37)	0.994	F = 11 (27) M = 10 (24)	F = 11 (27) M = 9 (22)	1.000	–
Age (yr), mean (SD)	39.9 ± 10.8	40.5 ± 11.4	38.9 ± 9.7	0.660	42.2 ± 11.0	37.6 ± 10.0	0.171	–
House without garden or terrace, n (%)	15 (37)	12 (80)	3 (20)	0.267	10 (67)	5 (33)	0.239	–
Unemployment, ^a n (%)	11 (27)	8 (73)	3 (27)	0.504	7 (64)	4 (36)	0.399	–
Solitary lockdown, n (%)	3 (7)	2 (67)	1 (33)	1.000	2 (67)	1 (33)	0.963	–
Residence in high COVID-19 regions, ^b n (%)	16 (39)	13 (81)	3 (19)	0.185	8 (50)	8 (50)	1.000	–
Clinical variables								
Worsening of FMD, n (%)	14 (34)	–	–	–	2 (14)	12 (86)	<0.001	<0.001
Stopped physical exercise, n (%)	18 (44)	11 (61)	7 (39)	0.894	6 (33)	12 (67)	0.060	0.011
Stopped physical therapies, ^c n (%)	13 (32)	6 (46)	7 (54)	0.144	5 (38)	8 (62)	0.436	–
Increased anxiety, n (%)	22 (54)	12 (55)	10 (45)	0.189	5 (23)	17 (77)	<0.001	<0.001
Increased insomnia, n (%)	19 (46)	10 (53)	9 (47)	0.183	6 (32)	13 (68)	0.042	0.639
Lower mood, n (%)	20 (49)	10 (50)	10 (50)	0.078	6 (30)	14 (70)	0.019	0.924

^aUnemployment: sick leave, pandemic-induced layoffs, or permanent job loss.

^bHigh COVID-19 regions: Madrid, Catalonia, and Basque Country.

^cPhysical therapies: speech therapy, physiotherapy, occupational therapy.

P value obtained using chi-square/Student *t* test. Adjusted *P* value obtained using multivariable logistic regression analysis.

Highlighted *P* values = statistical significance.

Abbreviations: FMD, functional movement disorder; GHC, General Health Condition; COVID-19, coronavirus disease 2019; F, female; M, male.

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Four patients had medical emergencies during lockdown but avoided seeking care because of fear of infection. Four patients reported symptoms suggestive of COVID-19. One was tested (severe acute respiratory syndrome coronavirus 2 positive), required hospitalization, and reported FMD worsening. Twenty-two (54%) continued exercising. Of the 25 (61%) participants who followed speech/occupational or physical therapies, 12 (48%) were able to maintain them totally or partially telematically. About 50% referred to increased anxiety, insomnia, and lower mood. The variables studied and their association with changes in FMDs and GHC are reported in Table 1. None affected FMD symptoms. In contrast, GHC was significantly associated with changes in FMD, insomnia, anxiety, mood, and physical exercise.

Spain was under severe lockdown for 8 weeks during the infection peak. However, most patients in our cohort reported FMD stability. Although many suffered increased anxiety, insomnia, and lower mood that possibly affected their GHC negatively, these nonmotor symptoms did not lead to aggravation of their FMD. Functional neuroimaging suggests that excessive self-monitoring and self-awareness may play a role in the generation and perpetuation of FMDs.⁵ Furthermore, therapeutic strategies are based on diverting attention from symptoms.⁶ One could argue that this particular physiopathology could explain our results, because self-monitoring may decrease in the context of a worldwide crisis. Our study is limited by small sample size, self-selection bias, and self-reported outcome measures. Further studies are needed to better understand the impact of the COVID-19 pandemic on FMDs.

This study was approved by the Hospital Ruber Internacional's Ethics Committee. All of the data obtained were anonymous. We confirm that we have read the Journal's position on issues involved in ethical publication

and affirm that this work is consistent with those guidelines. ●

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References

1. Papa SM, Brundin P, Fung VSC, et al. Impact of the COVID-19 pandemic on Parkinson's disease and movement disorders. *Mov Disord* 2020;35:711–715.
2. Edwards MJ, Bhatia KP. Functional (psychogenic) movement disorders: merging mind and brain. *Lancet Neurol* 2012;11:250–260.
3. Anderson KE, Gruber-Baldini AL, Vaughan CG, et al. Impact of psychogenic movement disorders versus Parkinson's on disability, quality of life, and psychopathology. *Mov Disord* 2007;22:2204–2209.
4. Guy W, Clinical Global Impression. ECDEU Assessment Manual for Psychopharmacology, Revised National Institute of Mental Health. Rockville, MD: U.S. Dept. of Health, Education, and Welfare, Public Health Service, Alcohol, Drug Abuse, and Mental Health Administration, National Institute of Mental Health, Psychopharmacology Research Branch, Division of Extramural Research Programs; 1976.
5. Roelofs JJ, Teodoro T, Edwards MJ. Neuroimaging in functional movement disorders. *Curr Neurol Neurosci Rep* 2019;19:12.
6. Nielsen G, Stone J, Matthews A, et al. Physiotherapy for functional motor disorders: a consensus recommendation. *J Neurol Neurosurg Psychiatry* 2015;86:1113–1119.