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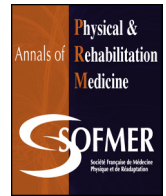


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Letter to the editor

Interruption of outpatient follow-up in physical and rehabilitation medicine: Observational cross-sectional study of deleterious consequences of the first COVID-19 lockdown in France



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Dear Editor. Between March and June 2020, France was heavily assaulted by the first wave of the COVID-19 pandemic. Like many countries, France decided to reserve medical resources for COVID-19 patients, stopping or delaying all “non-urgent” care including in- and outpatient follow-up for physical and rehabilitation medicine (PRM). The consequences of this brutal interruption in the specialized PRM follow-up of patients with functional disabilities (mainly musculoskeletal, neurological, cognitive, cardiorespiratory, or pelvi-perineal disorders) were qualitatively described but never quantified [1].

We hypothesized that the impact of this interruption was high and could be quantified by measuring “the need for rapid rescheduling” of outpatient PRM medical consultations that were cancelled during the 8-week first lockdown. Therefore, the main objective of our study was to quantify this “need for rapid rescheduling” by calling patients directly. Secondary objectives were to: 1) characterize the reasons for this need; 2) refine them according to the patient’s underlying condition; and 3) describe access to other medical and rehabilitation services during the lockdown.

This study was reported using the STROBE checklist for cross-sectional studies.

This prospective monocenter observational cross-sectional study was conducted in a French university hospital usually providing 7000 to 9000 PRM consultations per year. It was approved by the local institutional review board (19,871) and was registered at ClinicalTrials.gov (NCT04384406). The investigation was a part of public health response and thus did not require approval from an ethics committee. As such, we were not required to collect written informed consent from participants. Participants

were informed orally that data from the phone calls could be used in research and that they had a right to refuse.

We included outpatients whose PRM medical consultations were cancelled during the first COVID-19 lockdown in France (March 17 to May 11, 2020). All patients were contacted by phone, except for those who had spontaneously rescheduled their cancelled consultation and participants followed by senior medical doctors (MDs) who were unwilling to complete the questionnaires.

Nine medical residents called these outpatients between April 9 and May 7, 2020, to assess PRM care needs. If residents considered that there was a need for rapid management, they had the option to: 1) provide an immediate phone consultation for urgent but easy situations (refilling a prescription or providing advice); or 2) ask for short-term rescheduling of the consultation with a senior MD within the next 3 weeks. Participants with no need for rapid management were scheduled for a consultation within the next 3 months.

All residents received prior oral training regarding harmonization of assessments and decision making, and all decisions were reviewed daily by the senior MD in charge of patients. The following data were collected: age, underlying condition, time since the cancelled consultation, reason for rapid management, disruption of home-based or community-based physical therapy (PT), and consultation with a primary care physician during the lockdown.

Data are described with means (SD) for quantitative variables and number (%) for categorical variables. Groups were compared by chi-square test or Fisher exact test for categorical variables and ANOVA for quantitative variables. To compare groups, we provided the effect size as percentage differences and 95% confidence interval (CI) of this difference. Subgroup analyses were performed if the interaction term in the whole sample analysis was deemed significant. The raw *P*-values of our tests were corrected by using the Hochberg method, to control for family-wise error rate; a corrected *P* < 0.05 was considered significant for all analyses.

Among the 832 patients with PRM consultations cancelled during the lockdown, 455 were included in the study (Fig. 1). Mean (SD) age was 50.0 (17.5). For the 239 participants with neurological conditions, the main pathologies were cerebral palsy (*n* = 42, 23%), stroke (*n* = 39, 21%), multiple sclerosis (*n* = 36, 20%), traumatic brain injury (*n* = 20, 11%), poliomyelitis sequelae (*n* = 18, 10%), neuromuscular diseases (*n* = 17, 9%), and Parkinson’s syndromes (*n* = 13, 7%). For participants with musculoskeletal disorders, the main pathology was chronic low back pain (*n* = 80, 38%).

Among the 455 participants, 211 (46%) required a rapid response: 113 (25%) received an immediate phone consultation, and 98 (22%) were rescheduled in the short-term (within 3 weeks). The rescheduled consultation was conducted face-to-face for 58 (59%) participants and via phone or videoconferencing for 37 (38%). The mean delay between the phone call and the initial cancelled consultation was 19.4 (15.1) days and was not associated

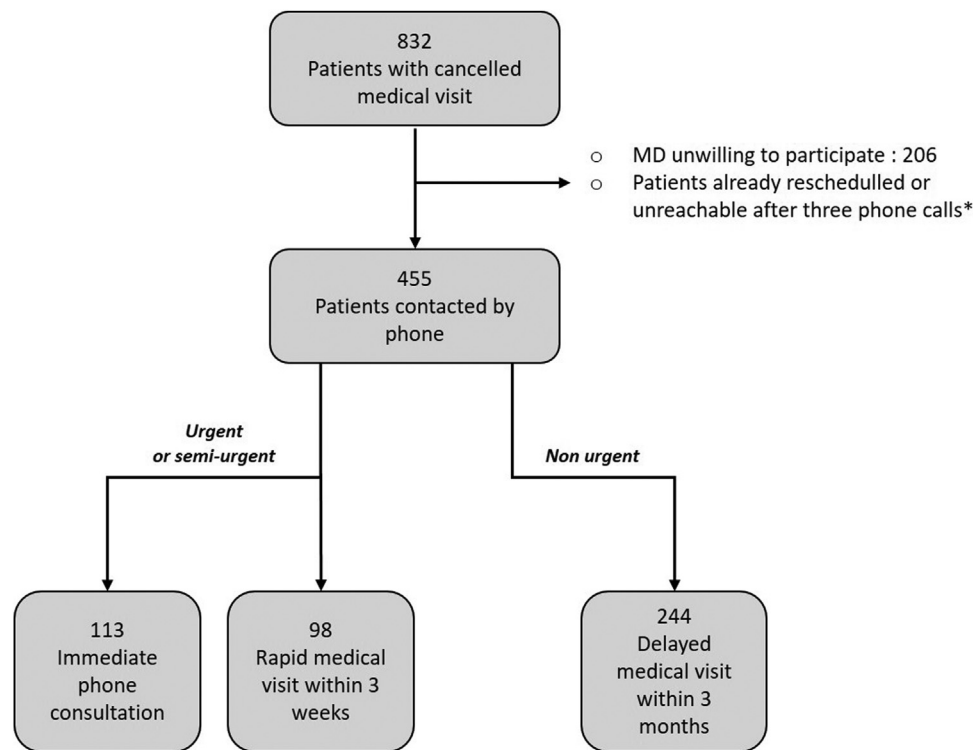


Fig. 1. Flow of participants in the study: *: unknown number; MD: medical doctor.

with the need for rapid management ($P = 0.63$). During the lockdown, 132 (29%) participants consulted their primary care physician. This consultation was not associated with the need for rapid management by a PMR physician.

Among the 239 participants with neurological disabilities, 88 (37%) required rapid management as compared with 59% (122/209) with musculoskeletal disease (difference 22%, 95% CI 12–31) (Table 1, $P = 0.0001$). An immediate phone consultation was more frequent for participants with musculoskeletal disease (42% vs. 11%, difference 31%, 95% CI 23–39), whereas short-term rescheduling was more frequent for people with neurological disabilities (26% vs. 17%, difference 9%, 95% CI 2–17) (Table 1, $P = 0.0001$). The reason for short-term rescheduling was functional decline in 47 (48%) participants, pain in 22 (22%), and both in 22 (22%). Among the 93 participants followed for botulinum toxin injections, 16 (17%) needed an immediate phone consultation and 25 (27%)

short-term rescheduling of the consultation. The reasons for the latter were mainly functional decline (48%), and both functional decline and pain (44%).

Before the lockdown, 319/455 (70%) participants had community/home-based PT: 57% with musculoskeletal conditions and 82% with neurological disorders. Because of the general interruption of community/home-based PT services in France during the lockdown, 112 (94%) participants with musculoskeletal conditions versus 162 (83%) with neurological disorders (difference 11%, 95% CI 5–18, $P = 0.06$) interrupted their PT. Among these 274 participants, 129 (46%) reported impaired health status, with no significant difference between participants with musculoskeletal and neurological disorders (43% and 49%, difference -7%, 95% CI -19 to 5, $P = 0.84$). Among the 319 participants with community/home-based PT before the lockdown, PT interruption was associated with the need for immediate or rapid management:

Table 1

Need for rapid physical and rehabilitation medicine management (immediate consultation and short-term reprogramming of the consultation) and reasons for short-term reprogramming, by disease group.

	Disease				P-value
	All n = 455	Musculoskeletal n = 209	Neurological n = 239	Other n = 7	
Management delay (n = 455)					0.0011
Rapid					
Immediate	113 (25%)	87 (42%)	26 (11%)	0 (0%)	
Short-term (3 weeks)	98 (21%)	35 (17%)	62 (26%)	1 (14%)	
Delayed					
3 months	244 (54%)	87 (42%)	151 (63%)	6 (86%)	
Reason for short-term reprogramming (n = 98)					0.5
Increase in pain	22 (22%)	12 (34%)	9 (14%)	1 (100%)	
Increase in functional impairment	47 (48%)	14 (40%)	33 (53%)	0 (0%)	
Increase in pain and functional impairment	22 (22%)	8 (23%)	14 (23%)	0 (0%)	
Missing data	7 (8%)	1 (3%)	6 (10%)	0 (0%)	

Data are numbered (column %). Groups were compared by Fisher's exact test, and P-values were corrected with the Hochberg method for all P-values of the study.

Table 2
Variables describing care pathway during lockdown according to the management delay.

	Management delay				P-value
	All	Immediate	3 weeks	4 months	
Whole sample (n=455)					
Consultation during lockdown	132/455 (29%)	32/113 (28%)	32/98 (33%)	68/244 (28)	0.67
Delay between phone call and cancelled consultation (days)	19.4 (15) (n=455)	20.5 (15) (n=113)	20.9 (17) (n=98)	18.2 (15) (n=244)	0.63
Patients who had home-based rehabilitation before the lockdown (n=319)					
Stopped home-based rehabilitation during lockdown	278/319 (87%)	63/63 (100%)	72/79 (91%)	143/177 (81)	0.009
Patients with musculoskeletal disease who had home-based rehabilitation (n=119)					
Stopped home based rehabilitation during lockdown	112/119 (94%)	45/45 (100%)	24/24 (100%)	43/50 (86)	0.009
Patients with neurological disease who had home-based rehabilitation (n=196)					
Stopped home-based rehabilitation during lockdown	162/196 (83%)	18/18 (100%)	47/54 (87%)	97/124 (78)	0.30

Values are mean (SD). Groups are compared by ANOVA for quantitative variables, Chi² or Fisher's exact test for qualitative variables. P-values were corrected using the Hochberg method.

100% of participants who needed an immediate consultation had stopped home-based rehabilitation versus 91% who needed short-term (3 weeks) consultation rescheduling and 81% who needed delayed (4 months) consultation rescheduling ($P = 0.009$) (Table 2).

To the best of our knowledge, this is one of the first studies to quantitatively assess the impact of pandemic lockdown in a comprehensive PRM sample [1–4]. The high percentage (46%) of participants who needed an immediate phone consultation or short-term rescheduling of their consultation with a PRM specialist could be quantified as a potential “loss of chance” due to cutbacks in PRM services during the pandemic and lockdown, which concerned up to 2.2 million people in Europe [5]. As expected, musculoskeletal conditions, often painful, led to a high percentage of rapid management. However, the main reason for short-term rescheduling, more frequent in participants with neurological disorders, was increased functional decline in 48% of participants. The percentage of participants with toxin botulinum injections in need of rapid rescheduling (44%) may be lower than in other centres because this treatment is usually performed every 3 to 4 months [6]; indeed, some patients could wait 2 additional months before experiencing a real functional decline. Of note, participants with non-PMR medical consultation during the quarantine period had the same need for urgent PRM consultation as others, which suggests that specialized PRM follow-up is not substitutable. Paradoxically, more than 50% participants who stopped PT during the lockdown did not report deteriorated health status, which questions the relevance of such long-term treatments in adults. However, most participants had engaged in self-rehabilitation activities to compensate for the interruption of community-based PT.

Our study emphasizes the importance of maintaining PRM care during a pandemic for patients with chronic disabling conditions. The massive disruption in PRM healthcare services can lead to a “loss of chance” for several reasons [3]: interruption of specific medical treatments or rehabilitation programs, decreased medical supervision of frail patients, discontinuation of orthopedic treatments, discontinuation of orthotic and prosthetic follow-up, and lastly absence of prevention regarding the predictable consequences of the lockdown itself, including deleterious decrease in muscular activities affecting functional abilities and detrimental psychological stress in cognitive and behavioral disorders. Innovative approaches to providing PRM follow-up or rehabilitation during the COVID-19 pandemic relies in part on telemedicine, including teleconsultation [7] and telerehabilitation [1,8,9].

Our study has some limitations. Our centre does not care for children and older people or patients with amputations, spinal cord injury, cardiorespiratory diseases, or pelvi-perineal disorders.

This study used data collected during medical calls by residents whose first objective was the care of patients in this unforeseen situation. Although 6/9 were PRM residents who had received standardized interview guidelines, our data may not achieve the usual research standards. Moreover, the expression of symptoms and demands by patients may have been altered by the anxiety induced by the pandemic. Finally, we did not collect other useful data such as refined functional status, anxiety, or perceived burden on families and healthcare workers.

In conclusion, 46% of outpatients with disabling conditions required rapid PMR management (within 3 weeks), even if their condition was chronic. This result quantifies a form of “loss of chance” and emphasizes the need to focus specifically on the PRM follow-up of individuals with disabilities during a pandemic.

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Disclosure of interest

The authors declare that they have no competing interest.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <https://doi.org/10.1016/j.rehab.2021.101531>.

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