

Supporting rehabilitation patients with COVID-19 during the pandemic: experiences from a technology-based psychological approach

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Abstract. Patients with COVID-19 experienced severe physical conditions as well as psychological difficulties. Moreover, the COVID-19 outbreak has disrupted rehabilitation programs for patients isolating them from their family and friends – that were not allowed to access hospital facilities to visit their beloved ones. Patients underwent a psychological intervention aimed at reducing distress symptoms and at favoring communication with caregivers. In particular, patients participated in videocalls via digital tablets to keep in contact with their family and friends.

Through the (novel) use of technologic devices, this descriptive study aimed at reporting the most common psychological issues displayed by patients with COVID-19 during the recent pandemic in a rehabilitation Institute.

Results show that symptoms of psychological distress (e.g., acute stress, depressive, anxious) were common among patients with COVID-19 in rehabilitation and were equally distributed across sex. The technology-based approach was feasible and easily integrated into the rehabilitation program.

In conclusion, in this situation of emergency and isolation, technologic devices had a key role in re-establishing communication between patients and caregivers allowing to provide the so important social support resource that was lacking. Technologic devices represent useful tools that can be integrated into psychological interventions in rehabilitation contexts to promote the psychophysical health of patients and caregivers as well.

Keywords: Clinical psychology, Technologic-devices, Rehabilitation, COVID-19.

1 Introduction

Recently, the COVID-19 pandemic disrupted the lives and routines of an outstanding number of individuals. The COVID-19 disease represents a severe threat for both physical [1] and psychological health across all ages [2, 3], and the risks of dangerous complications are greater for patients with preexisting health issues and aged [4]. In Italy, hospitals and rehabilitation Institutes had to reconvert whole wards to assist

patients with COVID-19. In order to contain the contagion, caregivers were not allowed to meet and visit their hospitalized beloved ones.

Thus, beyond the ‘usual’ hospitalization challenges, patients with COVID-19 and their caregivers had to face further difficulties related to the viral emergency, as the forced physical-isolation that resulted in a lack of reciprocal emotional support [5].

Despite these difficulties, digital technologies offer a considerable resource allowing them to maintain social contacts with family and friends through technologic devices such as smartphones and tablets [6]. In the last two decades, these tools have become popular, but people of the currently aged generations do not always own them or are not always confident in their use [7]. Moreover, most of the patients in rehabilitation are aged and/or fragile due to physical and/or cognitive issues, thus they frequently show difficulties – or inability – in properly using technology devices to communicate with their family and friends. Without communication, patients’ and caregivers lacked the social support resource and were continuously worried about each other health [8, 9].

As a result, the COVID-19 emergency exacerbated the stress of patients in rehabilitation and their caregivers at home. Consequently, the psychological intervention for rehabilitation patients and caregivers forced to physical distancing targeted the issues related to the COVID-19 emergency and aimed at re-connecting patients with their beloved ones by providing new digital communication modalities [10].

This study aimed at describing the most common psychological issues displayed by patients in rehabilitation who received a technology-based intervention during the COVID-19 emergency. Moreover, the role of digital devices for COVID-19 patients is discussed as well as its integration in routine clinical practice.

2 Methods

This study was conducted at the Maugeri Clinical and Scientific Research Rehabilitation Institute of Veruno (NO), in northern Italy.

Inclusion criteria were (a) being admitted to the rehabilitation hospital from 2nd March to 12th May 2020, (b) resulting positive to the COVID-19, and (c) participating to digital video calls with caregivers. All patients provided written informed consent.

The psychological intervention was conducted by two psychologists with a specialization in psychotherapy. As a clinical routine practice, after the physician or patient request for psychological assistance, the psychological assessment was conducted through the clinical interview – allowing the patient to express thoughts and emotions. Simultaneously, psychologists assessed a wide range of areas while providing immediate feedback, reassurance, and support. The most relevant psychological issues of patients were identified and an individual psychological intervention was started if needed. The intervention aimed at reducing the psychological distress of patients and caregivers and favoring communication with each other by using digital technologies. The intervention was specifically tailored to each individual needs with both face-to-face and technology-based modalities.

The novelty of the procedure consisted of introducing technology-based devices (i.e., tablets) to favor contact with caregivers through conducting routine video calls with patients. The video calls among patients and caregivers were conducted via a digital tablet or with the patients' smartphones (if suitable). All patients with good cognitive and physical resources were educated to use technologic devices on their own. If required, also caregivers could have individual psychological support by phone.

The following variables were registered:

- Demographics: age and biological sex;
- Medical diagnosis: COVID-19 vs. COVID-19 plus other medical conditions;
- Barthel index at admission: it measures the extent to which a person is independent and has mobility in activities of daily living, it ranges from totally dependent (=0) to totally independent (=100);
- CIRS ICS: it is an index of the severity of medical complications, higher values express higher global severity;
- Psychological issues: psychologists registered the most relevant psychological issues for each patient.

Descriptive analyses were performed to explore the most relevant psychological issues registered during the psychological sessions. The t-test and chi-square statistics were respectively used to compare the patients' age and psychological issues across males and females. The Cohen's *d* was used as effect-size. The R software was used.

3 Results

The overall sample included 63 patients, (females = 35; 55.6%), their age ranged from 48 to 95 years (mean = 76.95, SD = 10.35). A statistically significant difference was found between females (mean age = 80.83, SD = 7.87) and males (mean = 72.11, SD = 11.14): $t = 3.64, p < 0.001, d = 0.90$.

All patients had a COVID-19 diagnosis, some of them also showed additional preexistent health issues (N tot = 16, 25.4%) such as neurological (N = 6), cardiovascular (N = 4), psychiatric (N = 4), or other (N = 2).

Regarding physical conditions, the Barthel values did not differ between females (mean = 33.27, SD = 27.89) and males (mean = 38.25, SD = 34.42): $t = .542, p < 0.590, d = 0.15$. Differently, the CIRS ICS showed worst values for females (mean = 2.10, SD = 0.38) than males (mean = 1.86, SD = 0.29) with a significant difference ($t = 2.28, p < 0.028, d = 0.71$).

All patients conducted video calls to contact and see their relatives that were preferred to friends. Also, some patients required specific CBT intervention due to various psychological issues: depressive symptoms (15, 23.8%); acute stress symptoms (12, 19%); difficult grief elaboration (N= 7, 11.1%); anxious symptoms (6, 9.5%); and cognitive impairment 16 (25.4%). Only a minority of patients (N = 7, 11.1%) did not report any relevant psychological issue and only did videocalls.

The chi-square statistic showed no differences across sex regarding depressive, anxious, stress symptoms, grief, and cognitive impairment (Table 1).

		Females	Males	Statistic	<i>p</i> -value
Anxiety	Yes	3	3	$\chi^2 = 0.083$	<i>p</i> = 0.773
	No	32	25		
Depression	Yes	6 (%)	9 (%)	$\chi^2 = 1.929$	<i>p</i> = 0.165
	No	29 (%)	19 (%)		
Acute stress	Yes	5 (%)	7 (%)	$\chi^2 = 1.158$	<i>p</i> = 0.282
	No	30 (%)	21 (%)		
Grief	Yes	5 (%)	2 (%)	$\chi^2 = 0.804$	<i>p</i> = 0.370
	No	30 (%)	26 (%)		
Cognitive impairment	Yes	12 (%)	4 (%)	$\chi^2 = 3.284$	<i>p</i> = 0.70
	No	23 (%)	24 (%)		

Table 1. Distribution of neuro-psychological issues

Beyond participating in video calls regularly, all the principal caregivers were contacted by telephone to reassure them about the patients' conditions and to assess the need for structured CBT psychological intervention that was provided at distance to 8 of them (12.7%).

At the end of data collection, 9 patients died (14.3%), 6 still had COVID-19 (9.5%), 21 were dismissed home (33.3%), and 27 resulted negative for COVID-19 (42.9%), but still needed to continue rehabilitation in non-COVID-19 departments due to COVID-19 complications (N = 9) or preexisting health-issues (N= 18).

4 Discussions and conclusions

This study aimed at summarizing the psychological issues that emerged among patients with COVID-19 in a rehabilitation Institute during the recent pandemic. Psychological intervention enhanced with technology-devices was provided. Moreover, is highlighted the role played by technologic devices, such as tablets, smartphones, and telephones, in promoting communication, social support, and psychological health.

During the COVID-19 breakout, the rehabilitation challenges were exacerbated by this novel life-threatening disease that caused severe distress among rehabilitation patients with and without the COVID-19 virus. Also, caregivers were continuously worried about the patients' health conditions, most of them saw each other for the last time in an emergency room or an ambulance.

As results show, symptoms of acute stress, depression, anxiety, and grief were common. According to results, the χ^2 statistic did not reveal any significant difference in the distribution of psychological issues among males and females that both displayed

symptoms of psychological distress – even despite women’s physical conditions were frailer compared to men.

Literature showed that psychological intervention is a fundamental element of rehabilitative care to support both patients (and caregivers) given its effectiveness in enhancing adherence to medical treatments as well as psychophysical health [11, 12]. During this pandemic, the use of technology-based devices helped communication between patients and caregivers thus contributing to psychological support that has a key role in helping them in managing assistance-related stressors and maintaining good functioning [13, 14].

In a context where lockdown and sanitary restrictions did not allow visiting hospitalized patients, the use of technologic devices and at-distance communication represented a turning-point for psychological intervention [15].

Regarding technologic devices for patients, technology-based video calls with tablets and smartphones were crucial to re-establish the communication and connection between patients and their families who were separated due to the COVID-19 emergency. Indeed, in rehabilitation patients are usually surrounded by the social support of family and friends, almost daily visiting them. Although, particular situations – as the recent COVID-19 pandemic – may require adopting different online modalities to keep social contacts. According to the results, despite most of the patients were not used to technologic devices, all the patients willingly accepted to participate in the online video calls via tablet in order to communicate with relatives, showing a good and quick adaptation to the online modality that resulted to be feasible and well-accepted.

Beyond the exceptional COVID-19 situation, technology-based devices are useful to connect hospitalized patients with relatives living too far from the patient hospital or unable to visit them. For some patients, learning new technological skills may become part of the cognitive and practical rehabilitation activities.

Regarding psychological intervention for caregivers, it is usually delivered with face-to-face sessions at the hospital, but the adoption of telepsychology approaches (e.g., telephone, Skype, Zoom) represents a resource to extend both the number potential recipients and also the continuity of treatment over time, regardless of distance and time limitations.

Moreover, given that it is recommended to continue psychological support also after discharge to favor the adaptation to ‘daily’ life [12, 16–19], telepsychology approaches can allow delivering at distance monitoring and intervention with leaner modalities that both patients and caregivers can easily integrate into their busy lives, reducing the obstacles related to time and mobility constraints [20]. Indeed, it is important to monitor and provide long-term psychological support [21] after discharge from rehabilitation because some individuals may not be able to seek and require psychological help [22], both due to illness denial [16] and because of the widespread stigma toward psychological and mental issues [23–26].

This study is not free of limitations. This is a descriptive report so it not possible to evaluate the effectiveness of the intervention. Moreover, the psychological assessment was conducted with the clinical interview and no other formalized assessment methodology was used due to the large gap between personnel-resources and the number

of patients. Also, hygiene rules for COVID-19 did not allow patients to leave their room to reach the dedicated assessment rooms, nor to bring materials in and out of patients' rooms.

Future research should provide pre-post studies with formalized assessment methodologies. Furthermore, future studies should focus on specific categories at-risk for severe psychophysical health-outcomes, such patients with preexistent diseases (e.g. cardiovascular, obesity) [27–34], the frail categories from the general population, such as young adults [35–40], families going through challenging times [41–43], and elderlies [44–47].

In conclusion, psychological intervention is crucial in rehabilitation and in particular in challenging times as the COVID-19 outbreak. Psychological intervention can be enhanced by technologic devices and supports in order to favor communication, coping, adaptation, and the psychological health of patients and caregivers.

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