Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
Facing the real time challenges of the COVID-19 emergency for child neuropsychology service in Milan

Matilde Taddei *, Sara Bulgheroni

Developmental Neurology Unit, Fondazione IRCCS Istituto Neurologico Carlo Besta, Via Celoria 11, 20133 Milan, Italy

ARTICLE INFO

Keywords:
COVID-19
Children
Developmental disability
Telemedicine

ABSTRACT

Background: In Italy, due to the COVID-19 emergency, hospitals and health services were required to undergo rapid changes in organization and assistance delivery in order to control the epidemic outbreak. The confinement of the population and the outbreak impact on health care systems disrupted the routine care for non COVID-19 patients. Particular challenges have been faced for services working with neurodevelopmental disabilities and pediatric neurological disorders. We present the adaptation of our Child Neurology and Developmental Neuropsychology Service at the Developmental Neurology Unit, which is responsible for cognitive and behavioral assessment of children with neurodevelopmental disorders and neurological diseases, on an inpatient/outpatient basis, to the epidemic outbreak. In particular, we describe the introduction of telehealth in clinical practice and provide qualitative and quantitative data regarding the feasibility of the telemedicine protocol and the level of satisfaction experienced by families.

Outcomes: Patients admitted on an inpatient basis are limited to non-deferrable cases; all patients do pre-admission screening to exclude COVID-19 infection. Child neurologists and psychologists have switched the out-patient visits to telemedicine sessions, despite they had little to no previous experience in telemedicine. Families’ response to the proposal of video-sessions has been positive with 93% of families accepting it, preparing appropriate devices and conditions to participate at home. Main barriers to tele-sessions access were socio-economic and linguistic disadvantage, together with familiar health issues. The Telemedicine Satisfaction Questionnaire revealed high level of agreement between expected care and actual care received by patients and caregivers.

Conclusions: The experience of our Service confirms the importance of an inclusive response to emergency with respect to people with disabilities, ensuring the quality and continuity of care in times of population quarantine. Our experience could be useful worldwide to evaluate the feasibility of the Italian emergency response applied to the assistance of children with neurodevelopmental disabilities.

What this paper adds?

The epidemic COVID-19 has become a major public health challenge for many countries around the world. Italy has been one of the first countries to face the health emergency adopting rapid and drastic changes to the health care national system due to the need of epidemiological control and management of infected cases.

* Corresponding author.
E-mail addresses: matilde.taddei@istituto-besta.it (M. Taddei), sara.bulgheroni@istituto-besta.it (S. Bulgheroni).

https://doi.org/10.1016/j.ridd.2020.103786
Received 28 April 2020; Received in revised form 15 September 2020; Accepted 16 September 2020
Available online 23 September 2020
0891-4222/© 2020 Elsevier Ltd. All rights reserved.
Children with disabilities face additional challenges as a result of their functional limitations and conditions of fragility, requiring long-term treatments and special non-hospital support. This population need to maintain the continuity of services during quarantine, isolation or in time of social distancing norms. However, the delivery of health care assistance has drastically changed during the period of confinement, for both health professionals and families.

The experience of our Child Neurology and Developmental Neuropsychology service bring to light the real time challenges faced by health services working with children presenting developmental disabilities and their families during public health quarantine, supporting the assumption that it is important to guarantee an inclusive response to people with disabilities, ensuring the quality of care over time during the health emergency.

The present article could be useful worldwide to evaluate the feasibility and inclusiveness of the Italian emergency response model applied to the assistance of children with neurodevelopmental and neurological disabilities.

1. Introduction

Italy has been the first country in Europe hit by Coronavirus Disease 2019 (COVID-19), with the outbreak beginning on the 20th of February 2020, after the first report of the epidemic in China’s Wuhan-Hubei Province (Chan et al., 2020; Chen et al., 2020; Li et al., 2020; Lu et al., 2020; Wang, Horby, Hayden, & Gao, 2020; Zhou et al., 2020) and the declaration of the Coronavirus Disease 2019 (COVID-19) as a Public Health Emergency of International Concern (PHEIC) on January 30 (WHO, 2020a, 2020b).

The progression in the number of new cases was very rapid and Italy soon presented the second largest burden of COVID-19 in the world after China and the highest number of cases and deaths in Europe (European Centre for Disease Prevention & Control, 2020).

In Italy, Lombardy presents the highest number of COVID-19 cases and deaths until now.

The response strategy included early diagnosis, patient isolation, symptomatic monitoring of contacts, as well as suspected and confirmed cases, and a public health quarantine.

Hospitals and health services have been called to rapid changes in organization of care and assistance delivery due to the need of epidemiological control and infected cases management. Spaces and resources have been reorganized, new procedures have been developed in accordance to the national and regional emergency plans and laws. The confinement of the population and the outbreak impact on health care systems disrupted the routine care for non COVID-19 patients.

Special challenges have been faced for services working with neurodevelopmental disability and pediatric neurological disorders, populations suffering from chronic diseases, rare diseases and in conditions of fragility, requiring long-term treatments and special non-hospital support; these patients needed to maintain the continuity of treatments and support during quarantine, isolation or in time of social distancing norms (Gabrielli, Bertinato, Giuseppe De Filippis, & Cipolla, 2020).

Our Hospital has been designated as a Child Neurology and Neuro-surgical hub by the regional authorities of Lombardy during the sanitary emergency. Rapidly, the Hospital reorganized activities and admissions, developed pre-admission screening systems and isolation procedures for suspect and confirmed positive COVID-19 in-patients.

Moreover, since telemedicine was not embedded into routine service delivery, formal telehealth strategies, policies and procedures have been implemented experimentally, with the available technical infrastructures. Telemedicine has allowed the prosecution of the clinical activity with outpatient during the emergency period in the respect of the current laws on informed consent, data protection, privacy, surveillance and reimbursement issues.

The aim of the present work is to systematically explain the adaptation process to the sanitary emergency of our Child Neurology and Developmental Neuropsychology Service at the Developmental Neurology Division, which is responsible of cognitive, behavioral and adaptive assessment of children with neurodevelopmental disorders, such as Intellectual Disability, Psychomotor delay, Autism Spectrum Disorder, and neurological diseases. In particular, we will describe the introduction of telehealth into the clinical practice and provide qualitative and quantitative data about 1) the feasibility of the telemedicine protocol 2) the level of satisfaction experienced by families.

2. Methods

2.1. Clinical practice adaptation to the sanitary emergency

Patients admitted on an inpatient basis to the Developmental Neurology Division were limited to mandatory and non-deferrable cases such as neuro-oncological and surgical cases. Screening protocol for pediatric inpatients included accurate amnestic interview by phone to confirm the access to the Institute and modification of the access path to the hospitalization: advanced triage and use of single room with dedicated bathroom. Surgical mask, temperature reading, blood sampling, nasopharyngeal swab were delivered to the patient and caregiver; if there were no signs of infection and exams were negative, the parent could proceed to the administrative acceptance at the Hospitalization Office wearing surgical mask and the scheduled diagnostic and therapeutic procedures started. For patients transferred from another Hospital, the following information should be acquired: result of the swab performed no later than 48 h; declaration of absence of clinical suspicion of COVID-19 and the possibility of transfer to a non-Covid hospital.

For what concerns the out-patients, child neurologists, psychologists and therapists switched the visits to telemedicine sessions, despite they had little to no previous experience in telemedicine.

Patients admission at our Child Neurology and Developmental Neuropsychology Service is both on an inpatient and outpatient basis. Most of the patients afferent to our service are of pre-school age and are affected by mild cognitive and behavioral disturbances, which makes it very hard to ensure social distancing and use of personal protection equipment. For this reason, new admissions of
inpatients and out-patients to the Neuropsychology service have been suspended for the period of strict lockdown imposed by National Government. For out-patients children in course of assessment, in-presence sessions have been postponed, but diagnostic assessments have continued by telehealth platforms when possible, limited to session involving caregivers and stakeholders: diagnostic interviews, parent-administered questionnaires, psychological consultations with parents, teachers and health professionals, discussion of reports and case management interventions.

2.2. Telemedicine protocol

The first two weeks since the beginning of the national lockdown on March 9 (Government of Italy, 2020) were dedicated to develop formal telehealth strategy and to adapt the institutional guidelines to the specific needs of a pediatric Unit, providing ad-hoc procedures to be applied experimentally.

Until the telehealth procedures were completed, we privileged the use of the telephone as the simplest method of virtual communication which allows to quickly reach our patients and inform them about the need to slow down the activity by prioritizing non-deferrable issues.

The telemedicine guidelines were formalized on March 23 at Institutional level according to the regional authorities, well before the National Institute of Health provided interim provisions on telemedicine healthcare services, published on April 13 (Gabrielli et al., 2020).

The telemedicine procedures included the following steps:

- phone contact to request the patient’s caregiver availability to carry out the visit remotely through the use of electronic devices;
- explanation of the visit, reminder that an Internet connection and pc workstation with microphone and camera are necessary, registration of the e-mail of the caregiver in the database system and agreement on the day and time of the appointment;
- written informed consent about telehealth service, use of the allowed conference platform, and electronic transmission of the medical report were sent to the caregiver;

The platform used was Microsoft TEAMS, embodied into the e-mail account of the health workers, where the patients could access as external guest user through a link shared by e-mail, without downloading any application. The medical report was drafted after the tele-visit. Data about satisfaction are still under collection at the moment of the present submission.

2.3. Satisfaction questionnaire

To assess the level of satisfaction with telemedicine, defined as the match between expected care and received care, we employed the Telemedicine Satisfaction Questionnaire (TSQ, Yip, Chang, Chan, & MacKenzie, 2003). The TSQ is a 14-item survey scored on a five-point scale that assesses satisfaction and willingness to use telehealth technology in the future. The questionnaire demonstrated preliminary reliability and validity, indicated a positive correlation between TSQ and self-reported adherence (Yip et al., 2003), is freely available and has been implemented to evaluate the telemedicine user’s satisfaction in different clinical populations (Martin-Lesende et al., 2011; Stubbings, Rees, Roberts, & Kane, 2013; Tindall, Huebner, Stemple, & Kleinert, 2008).

To administer the questionnaire to Italian pediatric patients afferent to our Service, it was translated to Italian and adapted to consent the rating by the patient’s caregivers and not by the patient itself. The Italian translation and adaptation to pediatric patients can be provided by the Authors upon request.

The TSQ form was sent by e-mail after the tele-visit. Data about satisfaction are still under collection at the moment of the present submission. At the beginning of the questionnaire caregivers were asked to check the Service in which the visit was done and the type of operator (psychologist, child neurologist or therapist). After completing the questionnaire, caregivers were asked to give an unrestricted written feedback on the telemedicine services.

3. Results

3.1. Feasibility of telemedicine

The response of families to the proposal of video-sessions has been positive: telemedicine sessions have been explained and proposed by phone to all the families who were in the middle of the cognitive-behavioral assessment; 93 % accepted and had appropriate devices and conditions at home to participate. In particular, out of 30 families that were contacted, two did not participate to video-sessions. Both had limited access to devices: one was waiting for municipal economic provisions for a technological device, one had inadequate facilities. One family had a linguistic and socioeconomic disadvantage (Italian recently learnt as second language), and this made it difficult to correctly explain the televist procedure and documents about data protection and privacy. In the other family the relative with access to electronic devices was the less informed member about the functioning of the child, as the adequate facilities (e. g. good internet bundle, personal computer) were only present at the isolated grandparents’ home. Given the comprehensive clinical situation of the children not presenting urgent needs and significant impairment, these two families preferred to complete all the assessment in presence.

One teacher was contacted for an interview about a school-age child with suspect autism spectrum disorder, however she was not
reach for familiar health issues; this said it was possible to interview another teacher of the same class attended by the child.

Health professionals have experienced variable levels of distress and worries about the feasibility of introducing telehealth in clinical practice in the middle of a health and economic emergency; moreover, important changes and limitations have occurred in their work. Not being able to interact directly with the child increases the time of the behavioral assessment, that in 30% of cases has been delayed somewhat indefinitely, to a time when there will be greater epidemiological control and direct sessions with small patients will be safe.

3.2. Satisfaction questionnaire results

For the aim of this study we are providing data about questionnaires filled by parents and caregivers from June 8th to June 22nd.

At the moment of the present submission, the TSQ has been filled by 20 out of 28 families (71%) participating in tele-sessions during COVID-19 Quarantine with health professionals belonging to the Neuropsychology Service in the Child Neurology Division.

Results of this survey, presented in Table 1, indicated that participants were highly satisfied with video-sessions as a means of receiving healthcare services, with the highest satisfaction in the items regarding saving travel time and attention received. In the few visits were the child was involved, the parents reported that the child felt moderately comfortable during the visit.

The written feedback provided by the caregiver about the telemedicine experience is summarized in Table 2. Caregivers mainly expressed gratitude and appreciation for the service and the professionals. However, concerns about the lack of empathy in telesessions compared to in person visits have been addressed; moreover, some technical issues emerged, such as lack of connectivity and difficulties in listening or watching the professional during the visit.

4. Discussion

In the current time of health emergency and need to maintain social distances, telehealth may be a method of service delivery that could potentially eliminate barriers to healthcare access (Contreras et al., 2020). This is particularly important in the case of children with neurodevelopmental disorders and their families which require long-term treatments, non-hospital support and continuity of services during quarantine.

The protocol implemented for adapting the clinical practice to the health emergency in our Developmental Neurology Division included screening protocols for pediatric in-patients, limitations to mandatory and not deferrable cases, and switching the activity with out-patients to telemedicine. In particular, at our Child Neuroscience and Neuropsychology Service, diagnostic assessments of children with neurodevelopmental disabilities have continued only through telehealth platforms.

The present study showed the feasibility of our pioneer model in the adaptation to this new situation. Main barriers to tele-sessions access were socio-economic and linguistic disadvantage, together with familiar health issues. Preliminary data about the users' satisfaction regarding the introduction of telemedicine showed that the telemedicine experience has been accepted by caregivers of our patients, who reported a high level of general match between expected care and received care. However, written feedback from caregivers evidenced also some limitations in the use of telemedicine such as the perceived lack of empathy in comparison with the in-person visits and internet connectivity issues (e.g. video-call disconnections).

To overcome the socio-economic and linguistic barriers, it may be useful to develop simple connection procedures for caregivers, possibly with written instructions available in different languages. Technical problems in internet connectivity may be overcome by improving financial funding of fast internet network to assure a wider diffusion of efficient web connection; moreover, appropriate devices should be provided to health services and to families in socio-economic disadvantage (Smith et al., 2020).

Table 1

| Item | N  | Mean * |
|------|----|--------|
| 1. I can easily talk to my healthcare provider. | 20 | 4.73 |
| 2. I can hear my healthcare provider clearly. | 20 | 4.64 |
| 3. My healthcare provider is able to understand the healthcare condition of my child. | 20 | 4.55 |
| 4. I can see my healthcare provider as if we met in person. | 20 | 4.36 |
| 5. I do not need assistance while using the system. | 20 | 4.73 |
| 6. I feel comfortable communicating with my healthcare provider. | 20 | 4.73 |
| 7. My child feels comfortable communicating with my healthcare provider. | 5 | 3.67 |
| 8. I think the healthcare provided via telemedicine is consistent. | 20 | 4.55 |
| 9. I obtain better access to healthcare services by use of telemedicine. | 20 | 4.0 |
| 10. Telemedicine saves me time traveling to a hospital or specialist clinic. | 20 | 4.55 |
| 11. I did receive adequate attention. | 20 | 4.64 |
| 12. Telemedicine provides for the healthcare need of my child. | 20 | 4.18 |
| 13. I find telemedicine an acceptable way to receive healthcare services. | 20 | 4.36 |
| 14. I will use telemedicine services again. | 20 | 4.36 |
| 15. Overall, I am satisfied with the quality of service being provided via telemedicine. | 20 | 4.55 |

TSQ = Teledmedicine Satisfaction Questionnaire.

* A 5-point scale was used with the following values: 1 = Strongly disagree, 2 = Somewhat disagree, 3 = Undecided, 4 = Somewhat agree, 5 = Strongly agree.
All these issues have to be taken into account to enhance the quality of telehealth service, facilitate its implementation and deployment, and increase the user’s satisfaction.

Beside quantitative data, some descriptive consideration may be of interest. During the contact with families at the beginning of the health emergency and public quarantine, it has immediately been evident that parents are bringing new needs, doubts and questions besides the primary reason of consultation, such as difficulties in the family management. Children *per-se* rarely presented more complex or intense needs correlated to quarantine or general worsening of the clinical behavioral manifestations, probably because families gave the adequate attention to maintain domestic routines and structured activities as suggested by official guidelines (Istituto Superiore di Sanità, 2020a, 2020b). On the contrary, in many cases children are quite peaceful and calm, maybe taking advantage of the continuous presence of parental care and of domestic routines, which are less socially and adaptively demanding compared to the period when children spend the most of time at school, rehabilitation centers, and sport facilities. Mainly, parents are reporting doubts regarding the impact of the social isolation and extra-home activity reduction on the children development and disorders, they feel responsible for a possible under-stimulation of their children and they need psychoeducational advices. Parental concerns also regard the moment in which their children will participate again in activities outside their home: in fact, the quarantine may cause a restriction of the adaptive and functional behavioral repertoire of the child and raise more rigid adherence to solitary activities (e.g. use of tablets and screens) that can increment the isolation of children that are already at risk (ISS Working Group Mental Health & Emergency COVID-19, 2020).

Feelings of uncertainty and fears in facing the profound social changes and the health and economic crisis affecting all the community may be intensified in families with pre-existing vulnerabilities (Pratt & Frost, 2020; Zhang et al., 2020) on which future investigations are mandatory in all the countries hit by COVID-19. The availability and continuity of health assistance during the pre-pandemic period, seems to give comfort to families. The gratitude expressed to the health professionals was authentic, somewhat surprising, and is confirmed by the results of telemedicine satisfaction questionnaires, in which families reported high satisfaction regarding not only the accessibility of the service and time saving, but also the attention received by professionals.

Our experience confirms the importance to adopt an inclusive response to emergency with respect to adults and children with disabilities (Armitage & Nellums, 2020; WHO, 2020a, 2020b), ensuring the quality of care over time (continuity of care), employing procedures and methods adapted to the health emergency that requires continuous reorganization and adaptation (Boldrini et al., 2020).

This note about the experience of our Service, despite mono-institutional, could be useful worldwide to evaluate the feasibility and inclusiveness of the Italian emergency response model applied to the assistance of children with neurodevelopmental and neurological disabilities.

Future researches investigating the impact of emergency-related changes in daily access to health care on the quality of life and psychological health of children with disability and their families may be useful to promote a safe and evidence-based use of telemedicine during the current pandemic and future outbreaks.

### Credit author statement

Conceptualization: MT, SB;
Data curation: MT;
Formal analysis: MT;
Investigation: MT, SB;
Methodology: MT, SB;
Supervision: SB;
Visualization: MT;
Writing - original draft: MT;
Writing - review & editing: MT, SB.
Declaration of Competing Interest

None.

Acknowledgments

We thank Mariani Foundation for its support to the assistance and research taking place in our Unit related to complex neurodevelopmental disorders.

References

Armitage, R., & Nellums, L. B. (2020). The COVID-19 response must be disability inclusive. The Lancet Public Health. https://doi.org/10.1016/S2468-2667(20)30076-1

Boldrini, P., Kievens, C., Bargellesi, S., Brianti, R., Galeri, S., Lucca, L., … Negrini, S. (2020). First impact on services and their preparation: ’Instant paper from the field’ on rehabilitation answers to the Covid-19 emergency. European Journal of Physical and Rehabilitation Medicine. https://doi.org/10.23736/s1973-7916.20.00303-0

Chan, J. F. W., Yuan, S., Kok, K. H., To, K. K. W., Chu, H., Yang, J., … Tsoi, H. W. (2020). A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: A study of a family cluster. Lancet, 395(10223), 514–523. https://doi.org/10.1016/S0140-6736(20)30154-9

Chen, N., Zhou, M., Dong, X., Qu, J., Gong, F., Han, Y., … Yu, T. (2020). Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: A descriptive study. Lancet, 395(10223), 507–513. https://doi.org/10.1016/S0140-6736(20)30211-7

Contreiras, C. M., Metzger, G. A., Beane, J. D., Dedhia, P. H., Ejaz, A., & Pawlik, T. M. (2020). Telemedicine: Patient-provider clinical engagement during the COVID-19 pandemic and beyond. Journal of Gastrointestinal Surgery. https://doi.org/10.1007/s11605-020-04623-5 [Epub ahead of print].

European Centre for Disease Prevention and Control. (2020). In Coronavirus Disease 2019 (COVID-19) Pandemic: Increased Transmission in the EU/EEA and the UK – Seventh Update (2020, accessed 23 April).

Gabrielli, F., Bertinato, L., Giuseppe De Filippis, M. B., & Cipolla, M. (2020). Interim provisions on telemedicine healthcare services during COVID-19 health emergency. Version of April 13, 2020. 2020, ii, 29 p. Rapporti ISS COVID-19 n. 12/2020 (in Italian). Government of Italy. (2020). Decree of the president of the Council of Ministers 9 March 2020. March 9, https://www.gazzettaufficiale.it/eli/id/2020/03/09/20A01558/sg (2020, accessed 23 April; in Italian).

ISS Working Group Mental Health and Emergency COVID-19. (2020). 38 p. Rapporto ISS COVID-19 n. 43/2020 (in Italian).

Istituto Superiore di Sanita. (2020a). Interim indications for the appropriate support of people with Autism Spectrum disorder in the current SARS-CoV-2 emergency scenario. Version March 30, 2020. ISS National Observatory on Autism 2020, 13 p. Rapporti ISS COVID-19 n. 8/2020 (in Italian). Istituto Superiore di Sanita. (2020b). Interim indications for the appropriate support of the Children/adolescents’ mental health during the pandemic COVID-19. Version of May 31, 2020.

Li, Q., Guan, X., Wu, P., Wang, X., Zhou, L., Tong, Y., … Xing, X. (2020). Early transmission dynamics in Wuhan, China, of novel coronavirus–infected pneumonia. The New England Journal of Medicine. https://doi.org/10.1056/NEJMoa2001316

Lu, R., Zhao, X., Li, J., Niu, P., Yang, B., Wu, H., … Bi, Y. (2020). Genomic characterisation and epidemiology of 2019 novel coronavirus: Implications for virus origins and receptor binding. Lancet, 395(10224), 565–574. https://doi.org/10.1016/S0140-6736(20)30251-8

Martin-Lesende, I., Ornui, E., Cairo, C., Bilbao, A., Asua, J., Romo, M. I., … Larrañaga, J. (2011). Assessment of a primary care-based telemonitoring intervention for home care patients with heart failure and chronic lung disease. The TELBIL study. BMC Health Services Research, 11(1), 56. https://doi.org/10.1186/1472-6963-11-56

Pratt, B. A., & Frost, L. (2020). COVID-19 and the status of women’s, children’s, and adolescents’ health and rights: A targeted literature review of current evidence for action on universal health care (UHC) and accountability (Accessed in 24 June https://iapewec.org/wp-content/uploads/2020/05/Final_Targeted-Review_Covid-and-Accountability-for-Womens-Childrens-and-Adolescents-Health_GLOHI-1.pdf).

Smith, A. C., Thomas, E., Snowsill, C. I., Haydon, H., Mehrotra, A., Clemensen, J., … Caffery, L. J. (2020). Telehealth for global emergencies: Implications for coronavirus disease 2019 (COVID-19). Journal of Telemedicine and Telecare, 26(5), 309–313. https://doi.org/10.1258/1357633X20916567

Stubbing, D. B., Rees, C. S., Roberts, L. D., & Kane, R. T. (2013). Comparing in-person to videoconference-based cognitive behavioral therapy for mood and anxiety disorders: Randomized controlled trial. Journal of Medical Internet Research, 15(11), e258. https://doi.org/10.2196/jmir.2564

Tindall, I. R., Huebner, R. A., Stemple, J. C., & Kleinert, H. L. (2008). Videophone-delivered voice therapy: A comparative analysis of outcomes to traditional delivery for adults with Parkinson’s disease. Telemedicine and E-Health, 14(10), 1070–1077. https://doi.org/10.1089/tmj.2008.0040

Wang, C., Horby, P. W., Hayden, F. G., & Gao, G. F. (2020). A novel coronavirus outbreak of global health concern. Lancet, 395(10223), 470–473. https://doi.org/10.1016/S0140-6736(20)30185-9

World Health Organization. (2020a). Disability considerations during the COVID-19 outbreak accessed 23 April https://www.who.int/news-room/docs/who-documents-detail/disability-considerations-during-the-covid-19-outbreak.

World Health Organization. (2020b). WHO director-general’s statement on IHR emergency committee on novel coronavirus (2019-ncov), Accessed 23 April https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200311-covid-19 Situation Report 62.pdf.

Yip, M. P., Chang, A. M., Chan, J., & MacKenzie, A. E. (2003). Development of the Telemedicine Satisfaction Questionnaire to evaluate patient satisfaction with telemedicine: A preliminary study. Journal of Telemedicine and Telecare, 9(1), 46–50. https://doi.org/10.1258/13576330321159693

Zhang, J., Shuai, L., Yu, H., Wang, Z., Qiu, M., Lu, L., … Chen, R. (2020). Acute stress, behavioural symptoms and mood states among school-age children with attention-deficit/hyperactive disorder during the COVID-19 outbreak. Asian Journal of Psychiatry, 51, 102077. https://doi.org/10.1016/j.ajp.2020.102077. Advance online publication.

Zhou, F., Yang, X. L., Wang, X. G., Hu, B., Zhang, L., Zhang, W., … Chen, H. D. (2020). A pneumonia outbreak associated with a new coronavirus of probable bat origin. Nature, 579(7798), 270–273. https://doi.org/10.1038/s41586-020-2012-7