



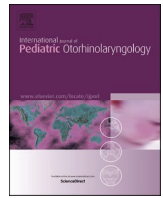
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# Provision of speech-language pathology services for the treatment of speech and language disorders in children during the COVID-19 pandemic: Problems, concerns, and solutions

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## ABSTRACT

Recently, a novel virus has spread worldwide causing the disease called COVID-19. In addition to putting people's lives at risk and causing mortality, various problems have occurred due to the negative effects of the COVID-19 pandemic. Quarantine, social distancing, and the obligation to use protective tools have led to sometimes long term closing of various jobs and services, including rehabilitation services. For instance, the disease has interrupted the provision of Speech-Language Pathology (SLP) services to children due to the need for face-to-face communication between Speech and Language Pathologists (SLPs) and children during the evaluation and treatment processes. Therefore, here, we described the quality of providing SLP services during the COVID-19 pandemic and the negative effects of the disease on the provision of SLP services. In addition, we made an attempt to explain concerns and problems raised by the families, the importance of providing SLP services during the critical period of speech and language development, telepractice services, the roles of speech-language-hearing related scientific associations, and the roles of SLPs during the outbreak of COVID-19.

## 1. Introduction

Coronavirus is a major pathogen that can cause respiratory diseases. Diseases caused by coronavirus pose a serious public health risk [1,2]. The Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) are two recently emerged respiratory diseases caused by a coronavirus that seriously threatened humans' health [2]. Recently, a novel type of the coronavirus has been reported, that seems to be much more transmittable, compared to the previous types [1,3,4]. The new disease caused by coronavirus is called COVID-19 by the World Health Organization (WHO) [2,5]. On December 31, 2019, the Wuhan Municipal Health Commission in Wuhan City, Hubei province, China, reported the first case of the COVID-19 disease [1,5,6]. Following that, the disease was reported in other countries of the world, and the pandemic nature of the disease led to reporting it in more than 200 countries [7,8]. COVID-19 is highly contagious [9], and people infected with the virus can transmit it before presenting significant symptoms [2]. As such, the prevalence of COVID-19 was higher than

that of the previous types of coronavirus-related diseases (e.g., SARS, MERS, and Ebola) in the world and quickly became a global pandemic [10]. In addition to putting people's lives at risk and a high mortality rate, the COVID-19 pandemic has negatively affected people's lives in many ways [11,12]. Various occupations and service-providing centers have temporarily been closed down due to the necessity of quarantine during the COVID-19 outbreak [12]. This is especially true for services that require a close distance between the service receiver and the service provider [13]. Speech and Language Pathologists (SLPs) usually require face-to-face communication with their patients to provide assessment and treatment services. As a result, the provision of services in this field has seriously been interrupted so as to observe the necessity of quarantine and social distancing.

Therefore, the present paper aimed to describe service provision to treat speech-language disorders of children during the COVID-19 pandemic. Moreover, we made an attempt to explain the problems, concerns, and solutions in this field as raised by this pandemic.

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### 1.1. The negative effect of COVID-19 on the provision of speech-language pathology (SLP) services

COVID-19 can easily be transmitted in case of close contact between people in case Personal Protective Equipment (PPE), including medical masks, gloves, face shield, and other protective tools, are not used [4, 14]. Therefore, it is crucial to put distance between yourself and other people outside your home and use PPE to avoid coronavirus infection. Meanwhile, provision of SLP services requires full communication between SLPs and patients, especially children. Given the necessity of having face-to-face communication, observing the speech articulators of SLPs by children, and establishing eye contact, SLPs cannot practically use PPE and may even need to touch the child for some reasons or use special toys to communicate with the children, which severely increase the risk of disease transmission. Therefore, in-person treatment is impossible in the area of SLP during the COVID-19 outbreak.

### 1.2. Families' concerns and problems

Families of children with different disabilities and communication disorders (e.g., hearing loss, stuttering, autism, cleft lip and palate, and language developmental disorders) deal with frequent problems [15–22]. The negative effects of children's disorder lead to physical, psychological, social, and economic discomforts in parents [16–18, 20, 23, 24]. The COVID-19 outbreak has probably caused other problems for these families, increasing the parents' physical and psychological issues during the pandemic [12]. This can negatively affect the quality of parental care and conducting speech-language exercises and this is while, the families of these children have typically the double burden of financial issues to treat their children's problems [17]. Meanwhile, with the outbreak of COVID-19 disease and its negative economic effects, families are likely to be under more economic pressure [25]. Families of these children deal with various psychological issues due to their children's problems [19, 24], which are intensified by their concerns regarding the treatment of their children's speech-language problems. Overall, it seems that COVID-19 outbreak has increased the problems and concerns in families with children who suffer from various communication disorders and inabilities. Moreover, the sudden onset of certain speech and language disorders (e.g., stuttering) in children can increase parents' concerns for immediate assessment of the child's condition [19].

### 1.3. The importance of providing treatment during the critical period of speech and language development

The majority of children receiving SLP services are in the critical period of speech and language development [26], and will probably face several problems including reduced academic performance, reduced job opportunities, social outcomes, and reduced quality of life in the future in case of losing this golden age [27–29]. In fact, age is one of the most important factors in the development of speech and language [30]. The high complexity of speech and language development as well as the relationship between speech and language development and the development of other areas, such as cognitive and physical development, are other indications of the importance of early intervention for children who need SLP services [29]. Moreover, some disorders such as stuttering may become chronic in adulthood if left untreated in childhood, facing the individual with various challenges to resolve the issue [31]. Some other children, such as children with hearing loss who have recently received hearing aids or who have had cochlear implants, too, need to receive intensive speech-language pathology services [26, 32]. If hearing-impaired children are deprived of sensory and auditory stimuli during critical period of speech and language development, they will have many problems in the future, and thus early treatment is very important for these children [30]. The outbreak of COVID-19 and closing of most SLP centers deprive children who are in need of SLP services

and treatment and will cause numerous problems for them and their families, in case the golden time to receive SLP services is lost. As such, it is critical to find a solution to provide favorable and high-quality services to these children at times such as the COVID-19 outbreak, when the in-person provision of services is impossible.

### 1.4. Telepractice services: the best choice during a pandemic

In-person speech-language pathology is not possible for many individuals for different reasons, including geographical and economic issues, especially for low-income communities [28]. However, a solution is telepractice services and provision of SLP services from a distance [27, 28]. Telemedicine is defined as using remote communication technologies to provide medical-treatment services and information. Since 1997, telepractice has mostly focused on providing purely medical services to other healthcare specialties, such as SLP [33]. In addition, telepractice refers to the use of technology to provide health-related services that leads to a link between the physician and patient so that education, counseling, assessment, and even intervention and support are provided remotely [33]. In fact, telepractice provides the potential to implement health care services in remote areas, too [28].

Since SLP mostly relies on communication through visual-auditory and perceptual aspects, telepractice could be a proper opportunity to provide care in this field [34]. In addition, many health care problems, such as rehabilitation, can be solved via telepractice protocols [33]. Nonetheless, there are restrictions in the use of telepractice in the community of SLPs due to certain barriers such as limited repayments, rules for issuing necessary licenses, and confidentiality terms regarding medical information [35]. Up to 2002, only 9% of SLPs used telepractice as a platform for therapeutic evaluation and intervention [28]. However, interest in research in this field has increased during the past decade [36], and numerous studies have reported the positive effects of using telepractice on evaluation and treatment of various speech-language disorders [27, 28, 35, 37–39]. Currently, the outbreak of COVID-19 disease has disrupted the provision of services in many SLP clinics, and closing of the clinics has resulted in canceling speech-language therapy sessions for children with speech and language disorders. Given the need for continuous therapy sessions in order to treat speech-language disorders, the application of telepractice may eliminate problems in this area to some extent while preventing the transmission of COVID-19 [13], and guaranteeing the health of SLPs and children. The American Speech-Language-Hearing Association (ASHA) has assured that the assessment and treatment process in speech and language pathology can be done through telepractice [40].

### 1.5. The role of speech-language-hearing associations during COVID-19 pandemic

The outbreak of COVID-19 revealed the need for a higher emphasis on telepractice in speech-language-hearing associations to provide remote care in this field [41]. It is better to hold proper telepractice language-related courses in these associations across the world and in various countries so that therapists' awareness about this type of service provision is heightened and research on this issue is prioritized. It seems that the measures taken by these associations could improve the therapists' attitude toward telepractice and increase their knowledge and skills. In addition, these associations must pursue legal efforts to make these services legitimate and also covered by insurance in various countries. However, some countries are already providing insurance for telepractice services. Overall, it is suggested that further measures be taken by scientific associations to eliminate barriers in the path of therapists and promote telepractice facilitators so that this type of care be used more extensively by SLPs. It should be noted that so far many associations, including ASHA, have emphasized on the use of telepractice by SLPs [40, 42]. The ASHA have mentioned that telepractice is a viable process for delivering SLP services during COVID-19 pandemic

and that both evaluation and treatment were possible through telepractice [40].

### 1.6. The role of therapists during COVID-19 pandemic and outbreak

Since many healthcare centers and occupations, including SLP clinics, are closed due to the numerous negative effects of pandemics, such as COVID-19 disease, SLPs are obligated to improve their knowledge and experience in the field of telepractice. Using this method, therapists can perform their duties and treat patients while reducing the negative effects of COVID-19 on their economic status and income. In addition, they can be more protective of themselves by providing remote SLP services and decrease the chance of COVID-19 transmission to children and their caregivers [13,41]. Given the negative effects of COVID-19 on cognitive abilities and nervous system [43], SLPs may deal with patients who are treated cases of COVID-19 and who now require SLP services to treat their preexisting disorders (e.g. memory problems and executive function deficits) [43–45]. Since these patients are still carriers of the disease, telepractice is the best method to provide required services. Moreover, by obtaining more experience and knowledge about COVID-19, SLPs can be prepared for the future, in case remote care is needed.

Another role that SLPs can play for patients with COVID-19 is to provide communication paths for speechless patients who are in the mechanically ventilated condition. Patients with COVID-19 who underwent tracheal intubation or mechanical ventilation need to interact with the treatment staff, especially nurses [46,47]. Patients, who are in this condition, need to be heard, have control over their conditions and treatment status, convey their problems, and collaborate in decision making regarding their health [48]. When speech and communication with others are not possible, speechless patients report concerns and frustration [49]. Also, the lack of patient's communication with the treatment staff has a negative impact on the quality of patient care [50]. SLPs have the potential to improve the interaction between nonspeaking patients and nurses in the intensive care unit using Alternative and Augmentative Communication (AAC) and hence promote patient treatment outcomes [50,51]. AAC strategies can equip treatment staff to interact effectively with the patients [49].

## 2. Conclusion

COVID-19 pandemic has caused numerous problems in people's lives all around the world. In addition, the disease has caused many problems for healthcare providers and several occupations because of its high transmission rate. In this regard, a problem related to service provision is related to SLP in children. Given the need of many children to SLP services on specific times and the sensitivity and significance of childhood in terms of speech and language development, it seems that any interference in receiving these services can lead to the persistence of speech and language problems in children and as a result decrease their quality of life in the future. As such, the active therapists of the field must dedicate efforts to the proper provision of telepractice services. Meanwhile, the speech-language-hearing associations and other diseases that require SLP services should take solemn measures to train therapists so as to provide telepractice services and increase the quality of these services.

### Declaration of competing interest

The authors declared that there is no conflict of interest.

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