DKYAD Dil, Konuşma ve Yutma Araştırmaları Dergisi

Review

Disaster Management for People with Communication Disorders: Lessons Learned from the 2023 Earthquakes in Türkiye

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ABSTRACT

Purpose: In this review, based on the experiences of two devastating earthquakes of magnitude 7.7 and 7.6 that occurred in Türkiye on February 6, 2023, we aim to provide recommendations for earthquake preparedness, response, and recovery phases from the perspective of speech and language therapy for individuals with communication problems.

Method: The traditional review method was used in this study.

Conclusion: The 2023 Türkiye earthquakes highlight the importance of disaster preparedness and management plans that address the unique needs of people with communication disorders. We emphasize the role of speech and language therapists (SLTs) as essential contributors to disaster management teams and advocate for their inclusion in disaster planning efforts. SLTs can provide training to the whole community, including search and rescue and first aid personnel, on how to communicate with individuals with communication disorders. It is recommended that alternative and augmentative communication systems should include symbols containing earthquake-specific words and that these systems should be kept in the disaster kit. It is recommended that the approach and intervention for traumatized individuals be included in the curriculum of speech and language therapy. It is also recommended to provide speech and language therapy services to individuals with communication disorders in temporary accommodation areas and through teletherapy. By implementing the recommendations presented herein, we can take significant strides toward building a more inclusive and compassionate disaster management framework, one that prioritizes the voices and needs of all individuals, including those with communication disorders.

Keywords: disasters, earthquake, people with communication disorders, speech and language therapy, Türkiye

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İletişim Bozukluğu Olan Bireyler için Afet Yönetimi: Türkiye'deki 2023 Depremlerinden Çıkarılan Dersler

ÖZET

Amaç: Bu derlemede 6 Şubat 2023 tarihinde Türkiye'de meydana gelen ve 11 ili etkileyecek kadar büyük yıkıma yol açan 7,7 ve 7,6 büyüklüğündeki iki şiddetli depremden edinilen deneyimler temel alınmıştır. Bu kapsamda iletişim bozukluğu olan bireyler için dil ve konuşma terapisi perspektifinden depreme hazırlık, müdahale ve deprem sonrası iyileşme aşamaları için öneriler sunulması amaçlanmaktadır. Deprem bölgesinde yaşayan herkesin bu afetten etkilenmesi ile birlikte, özel gereksinimleri olan bireyler sorunlarının doğası gereği en fazla etkilenen grup olmaktadır. Bu çalışmada afete maruz kalan bu hassas popülasyonun doğal afetler sırasında karşılaştığı zorluklar incelenerek, kapsayıcı afet yönetimi stratejilerine duyulan kritik ihtiyaç vurgulanmaktadır. Buna ilaveten bu derlemede, Türkiye'de 2023 yılında yaşanan depremlerden çıkarılan derslere dayanarak, mevcut afet müdahale protokollerindeki boşluklar araştırılmakta ve iletişim bozukluğu olan bireylerin afetlere karşı dayanıklılığını artırmak için çözümler önerilmektedir.

Yöntem: Bu çalışmada geleneksel derleme yöntemi kullanılmıştır. İletişim bozukluğu olan bireylerde afet yönetimi, afet öncesi hazırlık ve afet sonrasında iyileşme süreci de dahil olmak üzere dil ve konuşma terapistlerinin rolüne dair konularda alan yazın taraması yapılmıştır.

Sonuç: 2023 yılındaki Türkiye depremleri, afete hazırlık ve afet yönetim planlarının iletişim bozukluğu olan bireylerin onlara özgü ihtiyaçlarını da ele alacak şekilde yapılmasının önemini göstermektedir. Buna dayanarak dil ve konuşma terapistlerinin afet yönetim ekiplerine önemli katkılar sağladığı vurgulanmakta ve afet planlama çalışmalarına dahil edilmeleri gerektiği savunulmaktadır. Yönetim planının olası afeti kapsayacak şekilde afet öncesi hazırlığı, mevcut afet durumunu ve sonrasında iyileşme sürecini ele alması önemli görülmektedir. Depreme hazırlık aşamasında dil ve konuşma terapistleri arama kurtarma ve ilk yardım personeli de dahil olmak üzere tüm toplum kesimlerine iletişim bozukluğu olan bireylerle nasıl iletişim kurulabileceğine dair eğitim verebilir. Alternatif ve destekleyici iletişim sistemlerinde depreme özgü kelimeleri içeren sembollerin yer alması ve bu sistemlerin afet çantasında bulundurulması önerilmektedir. Böylece deprem esnasındaki müdahalelerde iletişim bozukluğu olan bireylere destek olunması konusunda da kolaylık sağlanacaktır. Depreme yanıt aşamasında dil ve konuşma terapistleri dil, konuşma ve yutma bozukluğu olan bireylere tarama, değerlendirme ve müdahale hizmeti verebilir ve ailelerine danışmanlık hizmeti sağlayabilir. Depremden iyileşme aşamasında ise iletişim bozukluğu olan bireylere geçici konaklama alanlarında yüz yüze veya teleterapi ile dil ve konuşma terapisi hizmetinin sağlanması önerilmektedir. Dil ve konuşma terapisi müfredatlarına travma yaşayan bireylere yaklaşım ve müdahale konularının eklenmesi tavsiye edilmektedir. Bu derleme kapsamında iletişim bozukluğu olan bireylerin afetlerdeki ihtiyaçları ile ilgili olarak dil ve konuşma terapistlerinin afet yönetimi boyunca oldukça önemli rolleri olduğuna değinilmektedir. Sunulan önerilerin uygulanması ile iletişim bozukluğu olan bireylerin ihtiyaçlarına öncelik veren, daha kapsayıcı bir afet yönetimi çerçevesi oluşturma yolunda önemli adımlar atılabileceği düşünülmektedir.

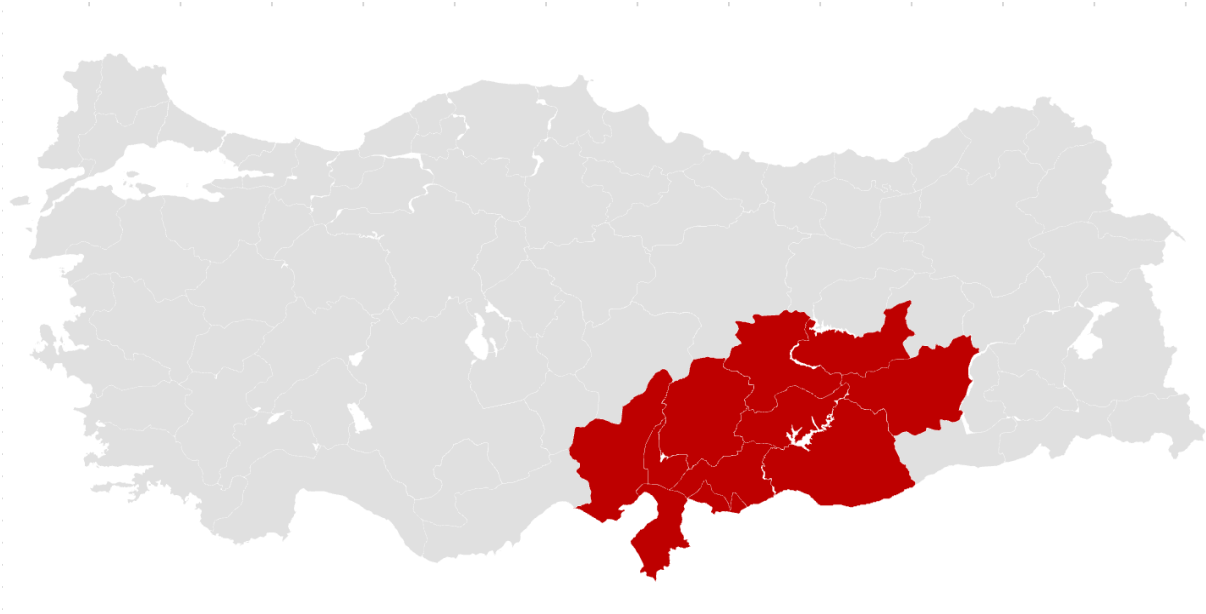
Anahtar Sözcükler: afetler, deprem, iletişim bozukluğu olan bireyler, dil ve konuşma terapisi, Türkiye

Introduction

On February 6, 2023, more than 50.000 people in Türkiye lost their lives and 108.368 were injured in two massive earthquakes measuring 7.7 and 7.6 on the Richter scale in Kahramanmaraş, Türkiye, affecting 11 cities in the southeast (Figure 1) and northern Syria (İlhan et al., 2023; Kantawala et al., 2023). Approximately 13.5 million people were affected in the 11 cities where the earthquakes occurred (İlhan et al., 2023). 2.2 million people either migrated to cities which were affected by the earthquakes or started living in containers or tents (World Health Organization, 2023).

Figure 1

Cities Affected by the Earthquakes in Türkiye in 2023



Although everyone living in the earthquake zone is affected by earthquakes, individuals with special needs are one of the most vulnerable groups in the face of disasters (Rofiah et al., 2021). Individuals with communication disorders are more affected by natural disasters due to their difficulty in understanding the impending danger, expressing their needs, and responding to rescue calls (Battle, 2015). While individuals with physical disabilities such as limb loss and motor disabilities are

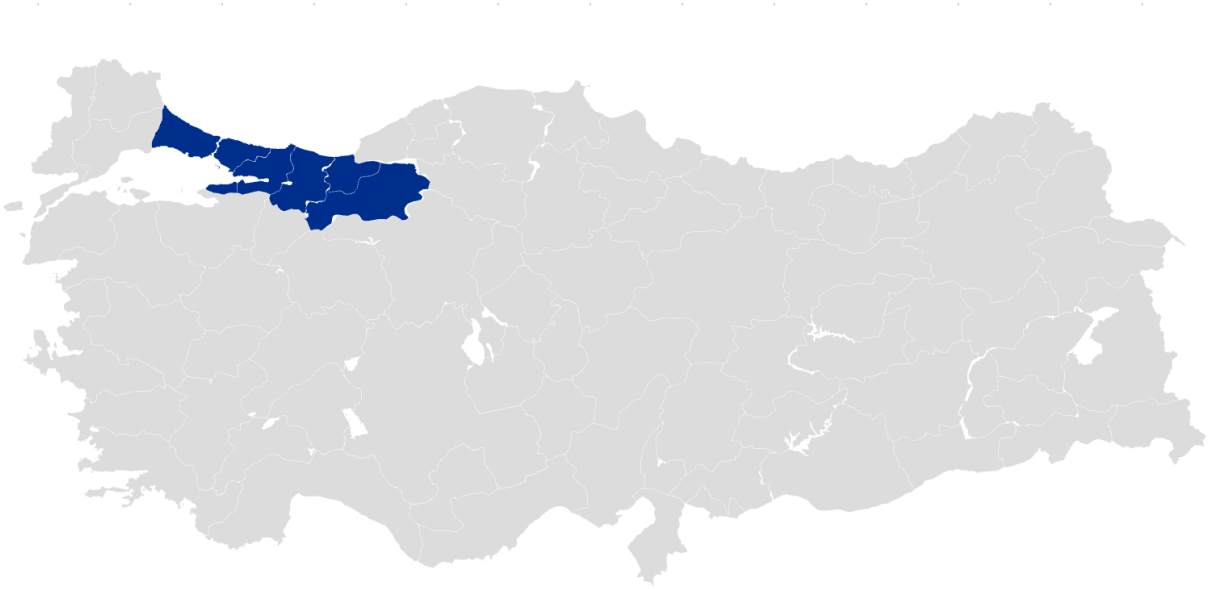
prioritized in disasters, people with communication disorders are not. Actually, these individuals' needs should also be addressed as well (Battle, 2015).

Türkiye is geographically located in an active earthquake zone and more than twelve earthquakes have been reported in the last century with a magnitude of at least 7.0 (Arslan & Korkmaz, 2007). In two devastating earthquakes that affected 6 cities in northwestern Türkiye (Figure 2), one in the city of Kocaeli on August 17, 1999, with a magnitude of 7.4, and the other one in the city of Düzce on November 17, 1999, with a magnitude of 7.2 on the Richter scale. About 17.000 people lost their lives and about 53.000 people were injured due to these earthquakes (Birgören et al., 2004; Bulut et al., 2005). Project HOPE, a renowned global health and humanitarian organization, sent a team of eight people to Türkiye on August 24, 1999, to assess and meet the health and medical needs of earthquake victims (Project HOPE, 2000). In 1999, following these two devastating earthquakes, the Izmit Rehabilitation Center was opened under the auspices of Izmit Municipality (a district of Kocaeli) with the support of Project HOPE, the Prime Minister's Office of the Government of Türkiye, Finansbank, the Mother and Child Education Foundation (MOCEF) of Türkiye, the Israeli Embassy and the Israeli Center for International Cooperation (MASHAV) to meet the rehabilitation needs of the affected people. Izmit Rehabilitation Center aims to develop and implement a three-year program of outpatient rehabilitation services. The center is equipped to provide adult and pediatric rehabilitation services, psychiatric, psychological and social work interventions, physical therapy, occupational therapy, speech and language therapy, rehabilitation nursing care, and prosthetic and orthotic services (Project HOPE, 2000). Project HOPE and the MOCEF also employed a speech and language therapist (SLT) from the United States of America (USA) at this center (Topbaş, 2006). In 1999, there were very few SLTs in Türkiye, as undergraduate, graduate, and doctoral education in speech and language therapy had not yet started (Topbaş, 2006). Therefore, many people affected by the earthquake had limited access to speech and language therapy services. According to the United

Nations Convention on the Rights of Persons with Disabilities, which Türkiye signed in 2009, Türkiye is obliged to make the utmost effort for the rehabilitation of persons with special needs, including in emergency and disaster situations (Çimşir, 2019). In 1999, speech and language therapy services were limited, but 24 years later, in 2023, there are now approximately 1.500 speech and language therapists working in Türkiye (Yaşa, 2023), 768 of whom are members of the Turkish Speech and Language Therapists Association (Turkish Speech and Language Therapists Association, n.d.). This situation makes accessing speech and language therapy services a little easier for individuals with communication disorders.

Figure 2

Cities Affected by the Earthquakes in Türkiye in 1999



There are few studies on disaster management in individuals with communication disorders in the literature, and we could not find any available study on disaster management in individuals with communication disorders specific to earthquakes (Boesch et al., 2022; Estes et al., 2023). In a survey of 20 families in the USA who sought alternative and augmentative communication systems (AAC) support during Hurricane Harvey in 2017, 61.5% of respondents disclosed they lacked pre-

disaster plans for AAC, with only 7.7% adequately prepared to face the disaster (Boesch et al., 2022). In a study involving 216 SLTs in Florida, aimed at exploring the involvement, training, and roles of SLTs in disaster management, 71.9% of the participants acknowledged lacking professional experience in disaster management, while 70% affirmed never having received training on disaster response, and 66% highlighted that SLTs possess unique skills contributing to disaster management (Estes et al., 2023). In this review, based on the earthquake experience in Türkiye in 2023, we will make some suggestions from the perspective of individuals with communication problems and the speech and language therapy profession on what can be done in the preparedness, response and recovery phases of the earthquake.

Preparedness before Earthquakes

Preparedness made before disasters significantly affects the effectiveness of the response and recovery phases (Patel et al., 2023). Kurt et al. (2021) conducted a comprehensive study to determine whether individuals with special needs in Türkiye are prepared for earthquakes and their needs related to earthquake preparedness. According to the results of this study, it was determined that individuals with special needs and their caregivers in Türkiye do not make adequate preparations for earthquakes, and the preparation made is mostly perceived as preparing bags or taking earthquake insurance. In addition, this study revealed that individuals with special needs and their caregivers do not know what to do during and after an earthquake.

In a study conducted with National Medical Search and Rescue Team (UMKE) personnel who provide medical rescue and emergency health services in disasters and emergencies in Türkiye, it was found that the participants had difficulty in communicating with individuals with special needs due to their lack of training and knowledge (Gönen et al., 2023). The American Speech-Language-Hearing Association (ASHA) recognized the growing importance of SLTs in emergency preparedness planning in 2008 (Quinn & Stuart, 2010). During the disaster preparedness phase, SLTs

can provide training to search and rescue and first aid personnel (SRFAP) on the communication needs of individuals with communication problems, especially those who rely on alternative and supportive communication systems, and also help develop a disaster preparedness plan (Nunez et al., 2008). After the 2023 earthquakes in Türkiye, a total of 24,727 search and rescue personnel, including 5,709 from abroad, were deployed (Kantawala et al., 2023). During the disaster, SRFAP from other regions had difficulty reaching the disaster area due to damaged roads and airports (Abraham et al., 2023). Therefore, local people living in the region acted as SRFAP (Abraham et al., 2023). The last disaster experience in Türkiye shows that it is important to train SRFAP as well as the general public on the communication needs of individuals with communication disorders. Therefore, it is everyone's duty to prepare for disasters on national, state, local community, and personal levels (Kruger et al., 2018).

Individuals using AAC may experience unique challenges during disasters (Boesch et al., 2022). These individuals may lose their AAC systems, have no way to recharge them or the systems may be damaged beyond use (Boesch et al., 2022). One of the most important difficulties for AAC users is the lack of disaster-specific vocabulary and communication boards in AAC systems that can be used before, during, and after a disaster. Disasters occurring in geographical regions should also be taken into consideration when assessing disaster vocabulary (Boesch et al., 2022). For example, for someone living in northeastern Türkiye, the disaster vocabulary should include words related to earthquakes as well as floods and landslides since these disasters occur frequently in this region. In the lessons learned from the hurricane by the families of AAC users who experienced Hurricane Harvey, they suggested having a plan to protect AAC, keeping AAC devices charged and buying chargers and batteries, contacting organizations for communication devices, and putting AAC equipment in a waterproof container (Boesch et al., 2022).

After the earthquakes we experienced in Türkiye, some SLTs provided various support for individuals in need of AAC. Yırtık et al. (2023) publicized the prototype AAC application they developed for individuals receiving treatment in intensive care, stating that earthquake victims who cannot communicate verbally can also use it. SLTs Ersin Sınay and Betül Sazoğlu prepared the Emergency Communication Board and Patient and Injured Communication Board for those who were affected by the earthquake. These boards were for the ones who have different kinds of communication problems, such as people with autism spectrum disorder who cannot speak, disabled people, people whose mother tongue is not Turkish, children, and adults who have difficulty communicating verbally due to physical or psychological trauma. The developers of these boards explained how to use these boards via video (Sınay & Sazoğlu, 2023). Additionally, it is recommended to use free AAC applications such as Dokun Konuş (Genc-Tosun & Kurt, 2017) and Cboard (Cboard Communication Board, n.d.) which offer Turkish language support.

Türkiye's earthquakes in 2023 severely damaged roads and electricity infrastructure (Kılıç, 2023). Therefore, it was not possible to receive low-tech or high-tech AAC support from non-affected cities immediately after the earthquake. It should also be taken into consideration that low-tech and high-tech AAC devices would run out of charge as the electricity infrastructure was damaged. It is advisable to include paper-based disaster communication boards in addition to high-tech AAC devices for individuals. Due to electricity issues, earthquake-protected buildings in cities should also have these boards for AAC users. Training SRFAP in communication with individuals using AAC is crucial. These personnel should be equipped with disaster communication boards.

Arrangements should be made in the disaster kits of individuals with communication disorders. For example, it is suggested that AAC system and emergency information cards should be kept in the disaster kits of individuals who use AAC, whistles should be kept for deaf individuals to

make their voices heard under debris, and tools for individuals with sensory needs should be kept for these needs (Boesch et al., 2022).

It is also recommended to prepare an emergency information card for the individuals with communication disorders and keep it in the disaster kit. These cards may include personal information, communication preferences or skills, contact details, medical information, likes and dislikes and other important information about the individual with communication disorders (Boesch et al., 2022).

It is recommended that earthquake practices should be carried out at regular intervals in order for individuals with communication disorders to learn what they face when an earthquake occurs and what to do in this situation (Boesch et al., 2022). SLTs can provide counseling to the families of individuals with communication disorders for earthquake practices. The United States Society for Augmentative and Alternative Communication (USSAAC) formed a Disaster Relief Committee (DRC) to create an educational resource to help people who use AAC and their families prepare for disasters after the hurricanes and wildfires. In 2019, DRC launched a 7-day online text-message toolkit project called "Disaster Preparedness for People Who Use AAC" to train people who use AAC and their families on disaster preparedness (USSAAC, n.d.). In a study examining the experiences of two AAC users and their caregivers who completed the USSAAC's disaster preparedness toolkit, it was found that person-centered use of the toolkit was feasible and supported positive changes in perceived disaster preparedness (Barton-Hulsey et al., 2023). We believe that the adaptation of this text-message learning toolkit into other languages, such as Turkish, will help many individuals around the world prepare for disasters.

Video modeling, animations, and social stories that simulate earthquakes can also be used for the practice of earthquakes. For example, in cooperation with Türkiye Disaster and Emergency Management Authority (AFAD) and the Republic of Türkiye Ministry of National Education, a video

animation was prepared to teach children about earthquake preparedness and what to do in case of an earthquake (Bakırköy District Directorate of National Education, 2021). As an example of video modeling and social stories, video models and social stories about earthquakes, floods, fires, traffic accidents, and disappearances were created with the "Learning and Get Beyond My Limits (ILGBMYL)" project, which was carried out between 2020-2022 under the coordination of Eskişehir Disaster and Emergency Management Authority. ILGBMYL project is aimed to produce innovative training materials for individuals with special needs and to provide the skills that individuals with autism and special needs will need during disasters and emergencies (Eskişehir Disaster and Emergency Management Authority, n.d.). Within the scope of the ILGBMYL project, in addition to social stories and video models about earthquakes, a Visual Glossary of Disaster and Emergency Terms, which explains disaster and emergency concepts with visual support adapted for individuals with special needs, provides basic disaster awareness training for families. Yet, a guideline was created for the search and rescue personnel on how to communicate with individuals with Autism Spectrum Disorder and Down Syndrome was created. To teach earthquake-related terminology to children with communication disorders, children's books on earthquakes, such as Oyuncak Moli Sallanıyor [Toy Moli Swinging] and Sallanan Karınca Yuvası [Rocking Anthill], prepared by the Turkish Ministry of National Education and UNICEF, can also be used (Kayıran, 2023).

The emergency department is one of the most intensely working departments of hospitals after disasters (Barten et al., 2021). Although, SLTs' scope of practice areas covers the emergency departments in the hospitals (Lal et al., 2023) unfortunately, this is not the situation in Türkiye. Therefore, it is recommended to employ SLTs in the emergency departments of hospitals in Türkiye and authorize them in counseling of people with communication problems. Additionally, considering the low number of SLTs in Türkiye, it may be considered as a feasible suggestion that SLTs provide

alternative communication skills training in hospitals more particularly to emergency specialists and nurses.

The American Speech-Language Hearing Association (ASHA) recommends many resources for SLTs and audiologists working with traumatised individuals (ASHA, n.d.). Within the scope of the event organized by the Turkish Speech and Language Therapists Association on February 21, 2023, 15 days after the earthquake, Assoc. Prof. Dr. SLT M. Emrah Cangi and Clinical Psychologist Gamze Akarca made a presentation to SLTs on "Interaction with Children and Young People in Disaster Periods and Some Suggestions for Clinical Services" (Akarca & Cangi, 2023). It is also recommended that SLTs should be trained in terms of approach and intervention to individuals experiencing trauma and psychological first aid in the curricula of speech and language therapy students with continuous education.

Response to Earthquakes

As a member of the first intervention team immediately after the disaster, SLTs can also serve individuals who have communication disorders or whose ability to communicate is endangered after the disaster (Estes et al., 2023). SLTs can take part in the screening, evaluation, and intervention of traumatic brain injury, aphasia, motor speech disorders, right brain injury, language, cognition, speech, voice and swallowing problems that may occur due to trauma in emergency services or field hospitals after a disaster (ASHA, 2016).

After the earthquakes, not only speech and language therapy services, but speech and language therapy education at universities were also affected. Due to the need for accommodation for the victims, universities switched to distance education in the spring semester of 2023 (Harmancı & Dikeç, 2023). Since the distance education infrastructure of universities in Türkiye was ready due to the COVID-19 experience, universities took quick action on this issue (Elhaty & Elhadary, 2023). For clinical internship, which is an important issue for speech and language therapy undergraduate

students, students searched for voluntary internships in the cities where they reside. In Mersin, a city close to the region where the earthquakes occurred, SLT Nida Şanlı formed volunteer internship groups to minimize the negative effects of distant education (Şanlı, 2023).

Recovery from Earthquakes

In the long term after the earthquake, it is important to identify and provide speech and language therapy services to individuals who need it both in the earthquake zone and those who migrated from the earthquake zone to the other cities. In this regard, AHBAP, a private non-governmental organization, has initiated the project "We Will Heal Together" by forming psychosocial support teams including volunteer psychiatrists, psychologists, teachers, child development specialists, occupational therapists, social workers and SLTs who want to provide services in the earthquake zone, outside the earthquake zone and through telepractice (AHBAP Association, 2023). Since many earthquake victims started to live in containers, tent cities, and dormitories after the earthquake, psychosocial support teams were established in these places. It is recommended to provide speech and language therapy services to individuals with communication problems by creating special areas where SLTs can provide speech and language therapy services in these temporary accommodation places. Another way for earthquake victims to receive speech and language therapy services is telepractice. Akın-Şenkal et al. (2023) administered 8 sessions of eclectic stuttering therapy with teletherapy to an 11-year-old girl with stuttering who resided in the city of Gaziantep in the earthquake zone and lived in a container city after the earthquake and did not have speech and language therapy services. According to the case and her family, the biggest advantage of teletherapy is accessibility and the biggest disadvantage is connection problems. Studies report that the use of teletherapy is feasible and effective in both adults and children, including different disorder groups (Edwards et al., 2012; Mashima & Doarn, 2008). In addition, it is claimed that teletherapy is as effective as face-to-face methods (Edwards et al., 2012). Therefore, the use of telehealth services

in speech and language therapy is supported (Speech Pathology Australia [SPA], 2014). However, this service delivery model has advantages such as facilitating the access of individuals living in distance place to therapy from where they are located, saving time, traveling, etc. (Wales et al., 2017; Rao & Yashaswini, 2018), as well as negative aspects such as connection problems, difficulties in situations such as power outages, and is challenging for individuals in some cases such as cognitive disorders (McCaslin, 2021). After a catastrophic earthquake that poses significant logistical difficulties, giving access to health care is the main advantage of post-earthquake telepractice (Emük et al., 2023).

Conclusion

In this review, we described the practices carried out for individuals with communication problems before, during and immediately after the earthquake and in the long term after the earthquake against the earthquake disaster we experienced in Türkiye in 2023 and made recommendations based on our earthquake experience. SLTs should take part in creating an earthquake preparedness plan and supporting individuals with communication disorders preparedness, response and recovery phases of the earthquake.

To summarise the recommendations in this review;

- SLTs can provide training to search and rescue and first aid personnel as well as the general public on the communication needs of individuals with communication disorders.
- AAC users should have disaster-specific vocabulary and communication boards in the AAC system.
- It is recommended to have a plan to protect AAC, keep AAC devices charged, and buy portable chargers and batteries, and put AAC equipment in a waterproof container.

- It is advisable to include paper-based disaster communication boards and emergency information cards in disaster kits.
- It is recommended that earthquake practices should be carried out at regular intervals to learn what individuals with communication disorders have to do when an earthquake occurs. Video modeling, animations, and social stories that simulate earthquakes can also be used for the practice of earthquakes.
- It is recommended to employ SLTs in the emergency departments of hospitals in Türkiye.
- It is also advised that SLTs should be trained in terms of approach and intervention to individuals experiencing trauma. Also, psychological first aid education should be offered in the curricula of speech and language therapy students with continuous education.
- It is recommended to provide speech and language therapy services to individuals with communication disorders in temporary accommodation areas and through teletherapy.

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