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Disaster relief and crisis intervention with Deaf communities: Lessons learned from the Japanese Deaf community

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ABSTRACT

During natural disasters and crises, the Deaf and hard of hearing community might not have full accessibility to all of the information shared with the larger hearing community. This may be due to the lack of awareness among social work professionals about these cultural and linguistic needs of this minority population. The purpose of this article is to explore the challenges faced by the Deaf community and to discuss culturally and linguistically appropriate crisis

intervention and mobilization to natural disaster situations based on the experiences of the Japanese Deaf communities affected by the Kobe and Tohoku earthquakes.

KEYWORDS: accessibility, crisis intervention, crisis mobilization, cultural and linguistic needs, Deaf communities, Deaf culture, disaster relief, mental health

Deaf people face greater challenges than hearing people during a natural disaster, ranging from not being able to hear standard warning systems to not being able to communicate with first responders and trauma care providers. The purpose of this article is to explore the challenges faced by the Deaf community¹ and to discuss culturally and linguistically appropriate crisis intervention and mobilization strategies in response to natural disaster situations based on the experiences of the Japanese Deaf communities affected by the Kobe and Tohoku earthquakes. The author, a Deaf licensed clinical social worker, spent several months providing crisis intervention and conducting a community needs assessment among the Deaf community in Tohoku following the Tohoku earthquake in 2011. Lessons learned from this experience, along with information from current

¹ Deaf community comprises those Deaf individuals who share a common sign language, common experiences, and values in Japan. Japanese Deaf community also has subcommunities and diverse communities such as Deaf LGBTQ communities.

literature, is used to create a list of practice suggestions to improve macro and micro level preparedness and responses to natural disasters.

Historically, Japan has a large population that is and has been affected by earthquakes, and the ratio of earthquake mortality has been increasing (Nakabayashi, 2012). At the writing of this article, it has been six years since the Great East Japan Earthquake (Tohoku earthquake) that happened on March 11, 2011. It measured a magnitude 9.0 earthquake with powerful tsunami waves that reached heights of up to 40.5 meters (Lekkas, Andreadakis, Kostaki, & Kapourani, 2011). In its aftermath, the Fukushima area had major infrastructure with their nuclear atomic plants having critical crises and with electricity, gas, and water facilities stopping automatically. Japan also experienced the Great Hanshin Earthquake (Kobe earthquake), which occurred on January 17, 1995, in the southern part of Hyogo Prefecture (Fujii et al., 2007). The Kobe city area was struck by a magnitude 6.5 earthquake. Not only do natural disasters cause many people to perish suddenly, but those who are left in the aftermath can be devastated physically, mentally, emotionally, and financially. During natural disasters and crises on a national level, the hearing community can respond quickly and relief resources can be mobilized quickly for hearing victims. On the other hand, Deaf and Hard of Hearing individuals might not have full accessibility to all of

the information shared with the larger hearing community, such as auditory warnings, spoken media, and disaster relief services designed for hearing victims. This may be due to the lack of awareness among social work and human service professionals about the cultural and linguistic needs of this minority population. For example, Deaf and Hard of Hearing individuals may be aware of vibrations and visual cues that an earthquake is imminent, but cannot hear alarms or warnings via many spoken media channels. Most tsunami warnings are based on audiological alarms and hearing people can sometimes hear the destruction of buildings (e.g. breaking glass, bending metal, etc.). These sound cues are inaccessible to Deaf and Hard of Hearing people and can put them in greater danger. Historically, Deaf victims of disasters have faced communication barriers and systematic oppression in crisis situations (White, 2006). After the Tohoku earthquake occurred, Deaf and Hard of Hearing individuals, along with the Japanese Association of Social Workers for Deaf and Hard of Hearing People² (JASWDHH), provided disaster relief and crisis intervention with approximately \$200,000 in funds supported by the Nippon Foundation and

² Japanese Association of Social Workers for Deaf and Hard of Hearing people was established in 2006 and the total membership is 125 members as of August 2017. The requirements for membership are the following: 1) licensed social workers, and 2) Deaf social workers or sign-fluent social workers.

American Jewish Associations. Also, JASWDHH worked with the Japanese Federation of the Deaf ³(JFD) to conduct a community needs assessment and survey throughout the Tohoku Deaf community post-earthquake. The JASWDHH was comprised of 96 licensed and sign-fluent hearing social workers and 38 Deaf and Hard of Hearing social workers.

Deaf Communities and the Earthquakes

Two powerful earthquakes hit the Kobe and Tohoku areas, triggering a tsunami that destroyed many areas and seriously impacted the Deaf communities of Japan. As a result of the Kobe earthquake, collapsed houses and fallen furniture crushed many victims to death. Approximately 285 separate fires destroyed 7,483 buildings after the Kobe earthquake (Cabinet Office, 2006).

The Kobe Deaf Association collected information on Deaf victims based on their membership and networking. **Table 1** shows the demographic information of the Kobe area affected by the earthquake. Based on the reports, the mortality rate of Deaf people (0.7%) was

³ Japanese Federation of the Deaf is a national advocate and politically independent organization funded May 25, 1947 in Japan. JFD has more than 22,000 members.

significantly higher than hearing people (0.17%). According to this mortality rate, the small size and demographics of the Deaf community, in comparison with the large hearing community, can impact the validity of the statistic and does not in itself infer causality. However, upon further investigation, collapsed houses and fires were the largest contributor to the high mortality rate among the Deaf community members. It is assumed that the Deaf people stayed inside their homes due to being unaware of evacuation warnings. Tanaka (1995) stated that 42% of Deaf and Hard of Hearing people could not identify the information on disaster relief support provided through the emergency broadcast system and only 17% of Deaf and Hard of Hearing people were accepted to stay in the local evaluation centers after the Kobe earthquake.

According to a survey related to the Tohoku earthquake (Fujii, 2015), the mortality ratio of people with disabilities, during and after the Tohoku earthquake, was more than twice as high as people without disabilities in Japan (see **Table 2**). The highest mortality rate was among Deaf and Hard of Hearing individuals within the individuals with disabilities categories (Fujii, 2012; Saito & Nishida, 2014). **Table 3** shows the mortality rates of the Deaf population affected by the Tohoku earthquake and tsunami. This information on mortality rates was collected by various Deaf

associations. Of note was the impact in the coastal Miyagi Prefecture where more than 56 Deaf people died from the combination of powerful Tsunami waves and the earthquake.

The majority of Deaf people in Japan are members of their local Deaf association and these membership bonds and communication networks were important during and after the earthquakes. Especially, Miyagi Deaf Association has a large individual membership and has always provided group activities and advocacy services for the members. It is the most important factor which contributes to providing successful disaster relief supports and crisis mobilization to the Deaf community. The Deaf community is more likely to receive information on disaster relief from personal networks in the Deaf community than from public channels. The fact of shared information among Deaf association members within the Deaf community appears to be a key to providing crisis intervention and disaster relief mobilization.

Based on the needs assessment conducted in the Miyagi prefecture, two Deaf people were in the two evacuation shelters and 29 Deaf people were in temporary housing after the Tohoku earthquake (Japanese Federation of the Deaf (JFD), 2011). However, Deaf people reported that they could not receive appropriate services in the evacuation shelters due to the lack of cultural and linguistic crisis mobilization. Unfortunately, most of the social workers completed their

intakes without a sign language interpreter. As a result of the inappropriate services to the Deaf people in the evacuation shelters, many Deaf people decided to stay in their damaged houses. Since the damage to the Fukushima nuclear power plant increased the level of danger, the number of Deaf evacuees increased. Two Deaf individuals were in the evacuation center and one Deaf person stayed in the evacuation center outside the Fukushima Prefecture. Also, four Deaf persons needed to stay permanently in the temporary housing.

Deaf Community and Crisis Intervention

Roberts (2005) defined a crisis as follows: “An acute disruption of psychological homeostasis in which one's usual coping mechanisms fail and there exists evidence of distress and functional impairment. The subjective reaction to a stressful life experience that compromises the individual's stability and ability to cope or function” (p. 778).

Looking at an analysis of Hurricane Katrina in White's (2006) study, the disaster relief response to the Deaf community was dismal and the Federal Emergency Management Association (FEMA) neglected this minority community because disaster relief agencies were not well trained to work with the Deaf community. Maja-Schultz and Swain (2012) stated that the emergency

preparedness (EP) plan for people with disabilities during crisis situations was insufficient to meet their needs. Also White (2006) noted that first responders and experts in the Deaf community called to assist the Deaf Katrina evacuees themselves needed psychological and relief support to reduce their own symptoms of post-traumatic stress disorders (PTSD) either from their direct or vicarious exposure to the disaster. More than 70% of shelters did not have access to sign language interpreters, tele-communication systems, or media with captions (White, 2006). In the Katrina Hurricane, some Deaf organizations provided financial support and relief due to the lack of resources specifically designed for the Deaf community by relief organizations.

Appropriate resources were also not available for the Deaf community during the Kobe and Tohoku earthquakes. Emergency response agencies provided medical treatments, psychological services, community announcements, transportation information, and peer group support to Deaf and Hard of Hearing victims without sign language interpretation. Additionally, it is not only the immediate response during a natural disaster that is important, and psychological trauma can persist in victims long after the actual disaster event has ended. Deaf and Hard of Hearing people who experienced the Kobe earthquake reported experiencing flashback episodes

and emotional numbness caused by mass media coverage during the disaster relief response to the Tohoku Deaf community (Takayama, 2011). A Deaf individual mentioned the following:

“I was very alone and isolated when I was watching a news program without closed captions and accessibility during Tohoku earthquake. The mass media always showed repeated exposure to traumatic images without a closed caption. It could lead to re-traumatization and flashback episodes” (Takayama, 2011).

The inaccessibility of mass media information can also have negative consequences on mental health as a trigger or as a general stressor for Deaf and Hard of Hearing people. Often, news stations and other media sources share information and videos during a natural disaster without appropriate accessibility for Deaf and Hard of Hearing people. The graphic nature of the videos and pictures without further information due to the lack of captioning or interpreting may negatively impact deaf viewers. They may either become re-traumatized if they were victims in a previous disaster or become mentally distressed due to the lack of clear information regarding the current disaster.

Excluded from communication

During the Tohoku earthquake, Deaf people were excluded from communication with individuals in the local evacuation shelters and temporary housing units provided by local governments and so they could not receive an appropriate crisis assessment and intake by the hearing social workers. The communication barriers resulted in many Deaf people staying in their vehicles or damaged houses (Japanese Association of Social Workers for Deaf and Hard of Hearing people (JASWDHH), 2012). In addition, Deaf people reported that they felt isolated from the local community in the evacuation shelter. There was a lack of awareness among the local government administrations about how to work with and include Deaf and Hard of Hearing people during the relief efforts. To address this concern, the Deaf Association and JASWDHH worked together to provide a safe space and group activities for Deaf victims to reduce their traumatic stress and depression. Deaf people collected disaster relief information through social media. However, the social and mass media would typically be inaccessible for persons with disabilities during natural disaster situations (Kent & Ellis, 2015).

Collaboration with local governments

As White (2006) mentioned, the major challenge has been in increasing disaster communication and reducing disaster risks for the Deaf community. Based on the Japanese laws

before the Tohoku earthquake, the local government administration required prioritizing the protection of personal information of people with disabilities more than the protection of their lives (Japan National Council of Social Welfare, 2014). Following the Kobe earthquake, the prefectural government shared lists of Deaf and Hard of Hearing people's personal contact information due to strong requests by the Japanese Federation of the Deaf and local Deaf organizations (JFD, 1995). With the Great East Japan Earthquake in Tohoku, however, three prefectures and city governments in the disaster area would not provide information on Deaf persons because of the Act on the Protection of Personal Information established in 2005 (JASWDHH, 2012). Therefore, the disaster relief efforts for Deaf and Hard of Hearing people in the Tohoku areas were limited due to a lack of official demographic information regarding the victims. Social workers confirmed the safety of many Deaf and Hard of Hearing people mainly through the personal network connections of local deaf organization members (JASWDHH, 2012). Thus, there was a lack of collaboration with local governments on the safety and whereabouts of Deaf individuals, due to the enacted privacy laws.

After the Tohoku earthquake, the Japanese Federation of the Deaf developed and shared a manual for the emergency preparedness and mobilization of the Deaf community based on the experience of the disaster relief efforts during the Tohoku earthquake (JFD, 2012). This manual

has been used by school social workers and deaf community members in providing education to Deaf and Hard of Hearing children and adults in hopes it will reduce pre- and post-disaster risks.

In the U.S., the American Red Cross and National Technical Institute for the Deaf (2010) developed educational materials for disaster preparedness in the Deaf community. Furthermore, some local governments and local Deaf associations in Japan have started to develop a DRR plan.

Crisis intervention model

Roberts (2005) developed a seven-stage crisis intervention model to include: 1) plan and conduct a thorough biopsychosocial and lethality/imminent danger assessment; 2) make psychological contact and rapidly establish the collaborative relationship; 3) identify the major problems, including crisis precipitants; 4) encourage an exploration of feelings and emotions; 5) generate and explore alternatives and new coping strategies; 6) restore functioning through implementation of an action plan; and 7) plan follow-up and booster sessions. This crisis intervention model identifies the needs of clients in the disaster relief period.

The disaster relief response from deaf organizations

In Japan, the local governments directly took responsibility to respond to a large-scale natural disaster (JFD, 2012). It is not surprising that most of the local government's disaster relief support to the Deaf community was systematically lacking and was not effective because of the lack of training in providing relief support for the Deaf and Hard of Hearing communities. In addition, they were not able to identify the cultural and linguistic needs of Deaf people in the pre- and post-disaster phases. In response, Deaf organizations set up a central headquarters for providing disaster relief support and an unofficial needs assessment under a Deaf licensed social worker's supervision seven days after the Tohoku earthquake (see **Figure 1**).

The JASWDHH, a part of the central headquarters, sent four Deaf and sign-fluent hearing licensed social workers to provide consultation for local Deaf associations and sign language interpreters for ten days in April 2011. This social work team conducted the first community needs assessment survey and interviewed 61 Deaf persons in Miyagi Prefecture affected by the earthquake and tsunami about their physical and mental health needs. In May 2011, a total of ten licensed social workers, along with Deaf peer counselors, conducted the second community needs assessment survey and collected data from Deaf victims of the earthquake. As shown in **Table 4**, the respondents were 125 Deaf persons, 61 males and 64 females. Their ages ranged from 17 years

old to 87 years old. 102 Deaf persons lived with their family members and 96 Deaf persons stayed in their own damaged house. Prior to the community assessment, the members of the JASWDHH developed a clinical assessment form for Deaf and Hard of Hearing individuals. The clinical assessment form included information on demographics, communication and language needs, hearing assistive devices, health, housing, and employment. One challenging part of the assessment process was that many of the Deaf individuals and their family members had never worked with a licensed social worker before. Therefore, they did not understand the role of social worker at that time during the disaster relief period. The results of this community needs assessment survey showed that most Deaf survivors and their family members had faced many life problems such as physical health conditions, mental health problems, lack of employment, and other life needs due to the earthquake. After staying at the evacuation shelter, 23 Deaf persons needed treatment for the issue of high blood pressure affected by the stressful evacuation life and isolation. Furthermore, some of the Deaf people faced unresolved life issues prior to the Tohoku earthquake, such as diabetes and alcohol problems. Also, 13 family members of the Deaf survivors died during the disaster.

We provided crisis intervention and case management services with the local social service agencies to the best of our ability while also conducting the community needs assessment. After the second community needs assessment survey, the JASWDHH received approximately \$200,000 in funds from the Nippon Foundation and American Jewish Associations to provide short-term and long-term interventions in disaster relief activities for Deaf communities.

JASWDHH disaster relief model- Deaf support Nakama

The JASWDHH started the disaster relief project called “Deaf Support Nakama” funded by the Nippon Foundation and American Jewish Associations in July 2011 (JASWDHH, 2012). The Deaf Support Nakama project delivered psychotherapy and case management services provided by licensed clinical social workers with knowledge of the Deaf population and fluency in Japanese Sign Language (see **Figure 2**). The JASWDHH sent a Deaf licensed social work coordinator to Miyagi prefecture and that coordinator remained through the 2011–2012 year. The office of the coordinator in Miyagi was located in the Miyagi headquarters of the JASWDHH, where the Deaf licensed social work coordinator consulted and supervised Miyagi Deaf peer counselors and sign language interpreters. Also, the social work coordinator provided consultation for local governments and local community agencies unfamiliar with how to work with Deaf and

Hard of Hearing populations. After the social work coordinator had been engaged in the intake of Deaf clients, the social work coordinator sent requests to the central headquarters to dispatch a licensed clinical social worker to provide case management and counseling.

The Deaf Support Nakama project provided 385 dispatched social work services between July 2016 and June 2017 to include psychological services, case management, group counseling and grief counseling based on the individual needs of Deaf victims. Psychological services focused mainly on the issues of PTSD among the members of the Deaf community, much of which was not diagnosed earlier due to the lack of accessible psychological services provided by the hearing crisis intervention team. The group counseling provided group discussion and peer support with the overall goal of increasing coping strategies and coping skills among the participants. Group counseling was conducted in Japanese sign language and the group facilitator was a licensed Deaf social worker. In the termination phase in both individual and group practice, the social workers transitioned the Deaf participants to local social service agencies and educated them on how to work with their local Deaf community supports.

The Deaf Support Nakama project provided a training program on Psychological First Aid (National Child Traumatic Stress and the National Center for PTSD, 2006), which was translated

to Japanese Sign Language by a Deaf social worker and Deaf psychologist and made available on YouTube (Society of Deaf Psychotherapists, 2011) to increase dissemination to the Deaf community. The Deaf community can use this video on Psychological First Aid to assist in planning and crisis mobilization during a disaster until mental health professionals arrive. Another goal of the Psychological First Aid is to provide relaxation and peer-supports for Deaf professionals and sign language interpreters during a natural disaster. On the macro level, at the conclusion of the Deaf Support Nakama project, project funds were used to support the Miyagi government and Miyagi Deaf Association in establishing a public support center for Deaf people in December 2014. This support center was created in response to the limited resources available and satisfied the follow-up and booster stage recommendations of Robert's seven-stage model (Roberts, 2005).

Recommendations for Practice

An analysis of the data available from the Japanese earthquakes along with information from available literature suggests the following recommendations to increase effectiveness of disaster relief efforts for Deaf and Hard of Hearing people:

- 1) On the national and community levels, the government and the Deaf community members should review access to audio information on disasters and make the information available through multiple information technologies such as e-mail, Twitter, Facebook, Instagram and video-chat (United Nations, 2012), and video logs in sign language.
- 2) The Deaf community should participate in planning and implementing disaster risk reduction (DRR) procedures at the local level.
- 3) Deaf leaders and sign language interpreters should have basic knowledge of psychological first aid (PFA) for Deaf and Hard of Hearing people and maintain a list of mental health experts qualified to work with this population on the national level.
- 4) During disaster relief, mental health professionals and local government should refer Deaf and Hard of Hearing people to social workers or therapists who have cultural competence working with Deaf people.
- 5) Hearing professionals working with Deaf victims should utilize qualified sign language interpreters during disaster relief and be required to receive an orientation training on Deaf culture.

- 6) Social workers and sign language interpreters should seek supervision and practice self-care during disaster relief to reduce the risks of Post-Traumatic Stress Disorder (PTSD).
- 7) The Deaf community and experts working within the Deaf community, including sign language interpreters, social workers, and teachers at Deaf schools, should continue to develop DRR strategy plans with local governments to ensure the Deaf community receives more accurate cultural and linguistic disaster relief preparedness and services.
- 8) Privacy laws should be examined to the extent that they may prevent relief workers from accessing demographic information in order to better access and serve Deaf and Hard of Hearing victims of natural disasters.
- 9) The Deaf community and experts should provide a community-based education program to Deaf and Hard of Hearing people for understanding disaster relief and crisis mobilization.

Conclusion

There are many lessons to be learned from the Kobe and Tohoku earthquake disasters. It is important to fundamentally examine the limitations on any privacy laws that prevent social service systems from providing disaster relief support to Deaf and Hard of Hearing people during

natural disasters. The Deaf community members should advocate for laws that increase access to information, communication, and social welfare resources, and thus decrease discrimination for Deaf and Hard of Hearing people. In forming disaster preparedness, disaster relief, and restoration plans, it is critically important to include the Deaf community. As a prevention measure, cultural competence training for first responders and social workers to understand Deaf and Hard of Hearing populations should be an ongoing requirement.

References

- American Red Cross and National Technical Institute for the Deaf. (2010). *Disaster preparedness and the deaf community—For the deaf, hard of hearing and latened deaf*. Rochester, NY: Author.
- Cabinet Office. (2006). *The victim situation of Hanshin-Awaji great earthquake*. Tokyo: Cabinet Office's Educational Material.
- Fujii, K. (2012). *The Great East Japan earthquake and people with disabilities*. Retrieved from http://www.dinf.ne.jp/doc/japanese/intl/un/un_expert_group_meeting_120420_fujii_en.html
- Fujii, K. (2015). *The Great East Japan earthquake and persons with disabilities affected by the earthquake*. Report on the Great East Japan earthquake and support for people with disabilities. Japan Disability Forum, Tokyo.
- Fujii, M., Mandana, A., Takakai, T., Watanabe, Y., Kamata, K., Ito, A., ... Kakuda, Y. (2007). *A study on deaf people supporting systems using cellular phones with Bluetooth in disaster*. *World of Wireless Mobile and Multimedia Networks (WOWMOM)*. Retrieved from <https://www.semanticscholar.org/paper/A-study-on-deaf-people-supporting-systems-using-FujiiMandana/7241522bdc02aba47bf4f2a40949449ad48a8161>

Japan National Council of Social Welfare. (2014). *Research report on disaster relief for people with disabilities*. Tokyo: Author.

Japanese Association of Social Workers for Deaf and Hard of Hearing People. (JASWDHH) (2011). *The community needs assessment report*. Japanese Association of Social Workers for Deaf and Hard of Hearing people. Tokyo: Author.

Japanese Association of Social Workers for Deaf and Hard of Hearing people (JASWDHH). (2012). *Third interim report on the East Japan Great Earthquake disaster Deaf victims relief support project*. Tokyo: Author.

Japanese Federation of the Deaf (JFD). (1995). *The relief report on the Hanshin-Awaji Great Earthquake*. Tokyo: Author.

Japanese Federation of the Deaf (JFD). (2011). *Report on the Great East Japan Earthquake*. Retrieved from <https://www.jfd.or.jp/en/docs/2011/wfd2011-eq-presentation-jfd.pdf>

Japanese Federation of the Deaf (JFD). (2012). *The manual book for disaster relief mobilization*. Retrieved from <https://www.jfd.or.jp/info/2010/teq/p018/1-shodou-anpi-manual.pdf>

Kent, M., & Ellis, K. (2015). People with disability and new disaster communications: Access and the social media mash-up. *Disability and Society*, 30(3), 419–431.
doi:10.1080/09687599.2015.1021756

Lekkas, E., Andreadakis, E., Kostaki, I., & Kapourani, E. (2011). Critical factors for run-up and impact of the Tohoku earthquake Tsunami. *International Journal of Geosciences*, 2, 310–317.
doi:10.4236/ijg.2011.23033

Maja-Schultz, T., & Swain, B. (2012). Disabled adults in adult care facilities facing disasters in New York City: An aggregate assessment. *Journal of Case Management*, 13(2), 67–74.
doi:10.1891/1521-0987.13.2.67

Nakabayashi, I. (2012). Recovery from the Great East Japan earthquake disaster and main issues. *Journal of Household Economics*, 36, 107–116.

National Child Traumatic Stress and the National Center for PTSD. (2006). *Psychological first aid*. Retrieved from http://www.nctsn.org/sites/default/files/pfa/english/1-psyfirstaid_final_complete_manual.pdf

Nippon Hosho Kyokai. (2011). *The mortality of the Deaf among people with disability in the Tohoku earthquake*. Retrieved from <http://www.dinf.ne.jp/doc/japanese/prdl/jsrd/norma/n364/n364023.html>

Roberts, A. R. (2005). Bridging the past and present to the future of crisis intervention and crisis management. In A. R. Roberts (Ed.), *Crisis intervention handbook: Assessment, treatment, and research* (3rd ed., pp. 3–34). New York: Oxford University Press.

Saito, K., & Nishida, M. (2014). Field research on life support systems for disabled victims in disaster-stricken areas in Asia- Case of the typhoon Haiyan's victims in Leyte Island, Philippines. *Journal of Japan College of Social Work*, 62, 29–44.

Society of Deaf Psychotherapists. (2011). *Psychological first aid and mental health supports to Deaf people*. Retrieved from <https://sites.google.com/site/deafpsychotherapy/akaibu/saigai-ji-no-mentaruherusu/saigai-ji-no-choukaku-shougai-sha-mentaru-herusu-nitsuite>

Takayama, K. (2011). *The field notes: Disaster relief supports*. [Unpublished manuscript]

Tanaka, A. (1995). Hanshin Awaji great earthquake and deaf people. *The papers of annual conference of the Institute of Social Safety Science*, 5, 123–128.

Tanaka, A., & Hiroi, O. (1999). *Disabilities under the Great Hanshin-Awaji Earthquake: The necessity of providing full information*. Retrieved from http://www.hiroi.iii.u-tokyo.ac.jp/index-genzai_no_sigoto-jakusha-ronbun1.htm

United Nations. (2012). *United Nations expert group meeting on building inclusive society and development through promoting ICT accessibility: Emerging issues and trends*. Retrieved from <https://www.un.org/development/desa/disabilities/about-us/expert-group-meetings/united-nations-expert-group-meeting-on-building-inclusive-society-and-development-through-promoting-ict-accessibility-emerging-issues-and-trends-tokyo-japan-19-21-april-2012.html>

White, B. (2006). Disaster relief for deaf persons: Lessons from Hurricanes Katrina and Rita. *The Review of Disability Studies: An International Journal*, 2(3), 49–56.

Table 1. Kobe Earthquake and Mortality Rates in 1995.

	Population	Death	Mortality rate
Hearing	3,790,460	6,434	0.17%
Deaf	1,849	14	0.76%

Note. Adapted from Cabinet Office (2006) and Tanaka and Hiroi (1999).

Table 2. Tohoku Earthquake and Mortality Rates in 2011.

Population	Total number of People	Death	Mortality rate
All citizens	1,244,167	12,853	1.03%
Persons with physical disabilities	53, 928	1,243	2.30%
Persons with intellectual disabilities	8,362	80	0.96%
Persons with mental disabilities	5,286	79	1.49%

Note. Adapted from Nippon Hoso Kyokai (2011).

Table 3. Tohoku Earthquake and Mortality Rates among Deaf Communities in 2011.

Location	Deaf population	Deaf Association Individual members	Death	Mortality rate
Iwate Prefecture	715	195	11	1.54%
Miyagi Prefecture	1205	750	56	4.65%
Fukushima Prefecture	1833	670	8	0.44%
Total	3753	1615	75	2%

Note. Adopted from Japanese Federation of the Deaf (2011).

Table 4. The results of community needs assessment survey.

Gender	61 males	64 females						
Age	17– 19 (1)	20–29 (2)	30–39 (5)	40–49 (14)	50–59 (17)	60–69 (42)	70+ (30)	N/A (14)
Family structure	Singl e (12)	With family (102)	N/A (11)					
Intake location	Hous e (96)	Shelter (11)	Temporary housing (5)	Commu nity agency office (5)	Restauran t (2)	Other (6)		

Chronic diseases	High blood pressure (23)	Diabetes (12)	Stomach (10)	Heart disease (8)	Other (30)			
Mental health symptoms	Anxiety (13)	Insomnia (18)	Phantom earthquake (2)	Palpitation (1)	Hallucination (1)	A headache (1)	Short-term amnesia (1)	Neurosis (2)
Needs	Housing (10)	Counseling (13)	Unemployment (10)	Economic support (12)	Medical issues (4)	Transportation (4)	Caring family (4)	Interpreting (5)

Note. Adopted from *The Community Needs Assessment Report* by JASWDHH (2012).

Figure 1. The Organization Chart of the Central Headquarters. Note. Adopted from Japanese Federation of the Deaf (2011).

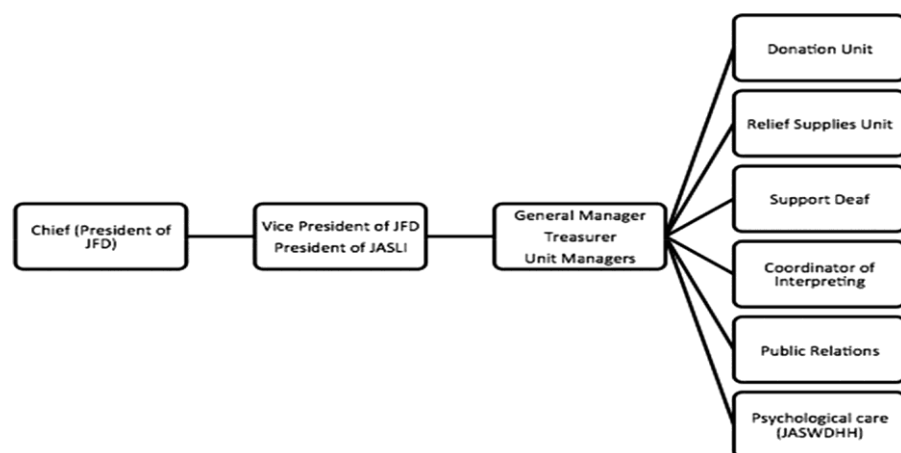


Figure 2. The Flow-Chart of JASWDHH Disaster Relief Model: Deaf Support Nakama.

