

Deaf and hard-of-hearing individuals in times of disaster and crisis

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Abstract

This descriptive study examines issues surrounding deaf and hard-of-hearing individuals' access to first response, healthcare and trauma-informed aftercare services in Denmark following experiences of disasters and crises. Nine deaf and hard-of-hearing individuals were interviewed about their experiences accessing these services. Difficulties were encountered during interactions with first response and healthcare services which centered on professionals being unprepared to meet communication needs, challenges accessing interpreter services, and professionals relying on hearing relatives to relay information. Barriers were reported in relation to accessing trauma-informed aftercare services. They included a lack of all-deaf/hard-of-hearing support groups as well as a limited number of crisis psychologists trained to service the needs of this population. Future directions for improvements to service provision were provided, including a list of practical recommendations for professionals. This study can inform policy makers and others authorities in the position to enhance existing services and/or develop new services for this target population.

Keywords: Disasters; deaf and hard-of-hearing individuals; first response aid; healthcare; trauma-informed aftercare

Introduction

Exposure to a disaster of any kind, whether it is natural or man-made, can have a devastating effect on the physical, psychological and social well-being of the people who experience them. Deaf and hard-of-hearing (D/HH) individuals are generally more vulnerable to the effects of disasters than the general population. They encounter many more communication barriers which can affect their equitable access to immediate response, as well as long-term recovery resources. An important piece of legislation for D/HH individuals is the Convention on the Rights of Persons with Disabilities (CRPD), adopted by the General Assembly of the United Nations on the 13th December, 2006 (UN General Assembly, 2007). The CRPD provides the full range of rights for persons with disabilities, including during situations of armed conflict, humanitarian emergencies and the occurrence of natural disasters (Article 11). Denmark and many other European countries have signed and ratified the CRPD. In the context of post-disaster medical and psychosocial service provision, State Parties and public authorities have an undeniable responsibility to ensure that current services be adapted to meet the specific needs of people with disabilities, including people who are D/HH. Despite the CRPD, the specific needs of D/HH individuals are still often isolated from services across Europe. Unfortunately, the limited research evidence available in the area of post-disaster medical and psychosocial care for people with disabilities is not particularly helpful for determining what should be done for D/HH individuals.

In recent years, initiatives have been taken in Europe to arrive at standards for post-disaster psychosocial care for individuals in the general population. The European Network for Traumatic Stress (TENTS) (www.tentsproject.eu) developed guidelines for the provision of post-disaster psychosocial care based on current research and expert consensus (Bisson, Tavakoly, Witteveen, Ajdukovic, Jehel, Johansen et al., 2010). The project European Guidelines for Target Group-Oriented Psychosocial Aftercare (EUTOPA; 2007-2009) (www.eutopa-info.eu), funded by the European Commission, developed a consensus product of the Dutch Impact center's "Multidisciplinary guidelines for early psychosocial interventions after disasters, terrorism, and other shocking events" (Multidisciplinary Guidelines, 2007). The German "Target Group Intervention Program" (TGIP) (Bering, Schedlich, Zurek, Kamp & Fischer, 2008) was adapted to disaster situations, and a pan-European network of experts on psychosocial care was established. The project European Guidelines for Target Group-Oriented Psychosocial Aftercare – Implementation (EUTOPA-

IP; 2009-2011) (www.eutopa-info.eu) aimed at implementing the results of EUTOPA (Vymetal, Deistler, Bering, Schedlich, Rooze, Orengo et al., 2011).

There has yet to be developed standardized, evidence-based guidelines for post-disaster psychosocial care in Europe for people with disabilities. In order to address this issue, the European Commission funded a two-year project, The European Network for Psychosocial Crisis Management – Assisting disabled in Case of Disaster (EUNAD)¹ (www.eunad.info.eu). The main objective of EUNAD is to develop and implement standardized EU human rights-related assistance programs for people with disabilities in times of disaster on the basis of the CRPD and the products of the former EUTOPA and EUTOPA-IP projects. EUNAD is targeted specifically toward visual- and hearing impaired populations. The project represents a collaborative research effort between partners from the following countries: Germany (Centre for Psychotraumatology, Krefeld; The Federal Office of Civil Protection and Disaster Assistance, Bonn); Czech Republic (Charles University, Prague); Norway (Norwegian Centre of Violence and Traumatic Stress Studies, Oslo); and Denmark (Danish National Centre for Psychotraumatology, University of Southern Denmark, Odense).

The focus of EUNAD in Denmark is on developing best practice guidelines in relation to first response aid and psychosocial crisis management for D/HH individuals in the event of disasters. D/HH individuals constitute a significant minority group in Denmark. It has been estimated that around 800.000 people have some form of hearing loss (Rømer and Tranebjærg, 2004). The preferred communication modalities of D/HH individuals vary greatly depending on degree of hearing loss and cultural orientation. Diverse communication modalities include Danish Sign Language (DSL), Sign Supported Communication, Mouth-Hand-System, hand alphabet (typically used to spell out names, places or other words that do not have a sign), lip-reading, as well as spoken and written Danish. A proportion of D/HH individuals choose to identify with the Deaf² community, a cultural and linguistic minority group centered on the use of DSL. There are no precise figures regarding the number of D/HH individuals that constitute the Deaf Community; however the National Danish Deaf Association (www.deaf.dk) estimates there are between 3.500-4.000 individuals whose primary language is DSL.

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² A capital 'D' is used to distinguish the cultural, linguistic Deaf community and its members, from the audiological condition of being deaf.

Consequent to Denmark ratifying the CRPD, the Danish Emergency Management Agency launched a text message warning service to assist D/HH individuals. When one or more of the sirens in the nationwide siren system are used to warn citizens of a disaster or accident, a simultaneous text message will be sent to D/HH individuals who are registered with the service (UN Committee on the Rights of Persons with Disabilities, 2007). Regarding the organization of local emergency responses to disasters and accidents, guidelines laid down by the Danish Emergency Service Act stipulate that local councils are responsible for providing reasonable assistance for personal injuries and property damage. This obligation also covers persons with disabilities (UN Committee on the Rights of Persons with Disabilities, 2007). However, the effects of disasters usually extend beyond personal injury and property damage. To be effective, assistance provided during and following disasters should also promote the psychosocial well-being of survivors. First response, healthcare and trauma-informed aftercare services play a critical role here. To what extent are these services equipped to respond to the specific needs of D/HH individuals?

To our knowledge no studies investigating this issue in Denmark exist. Moreover, there is a lack of international literature related to the topic. We found one US study relating to the preparedness of emergency services to respond to D/HH individuals in disasters (Engelman, Ivey, Tseng, Dahrough, Brune, & Neuhauser, 2013). Results showed a critical lack of training about D/HH emergency preparedness for emergency responders. Other US studies have examined the experiences of D/HH individuals in accessing trauma-informed aftercare services (Cabral, Muhr & Savageau, 2013; Tate, 2012). Overall, findings from these studies indicate that D/HH individuals face additional challenges in accessing trauma-informed aftercare services, largely due to communication barriers.

The authors of this study held two workshops during the EUNAD project period, the objective of which were to gain insight into the level of preparedness of services in Denmark to respond to the specific needs of D/HH individuals in the event of disasters. Attending one or both workshops were representatives from the National Danish Deaf Association, first response services (police, fire brigade and rescue services), Capital Region Psychiatry (Deaf Team), and Centre for Deaf (interpreter booking agency). It was found that:

- D/HH individuals are quite well assisted in terms of contacting the emergency services. They can via the National Danish Deaf Association or local Hearing Union

obtain an unlisted phone number which allows them to send a text message to the emergency dispatch centre.

- Sign language interpreters can be called upon to assist communication between professionals and D/HH individuals in emergency situations. They can be booked through interpreter booking agencies (e.g. Centre for Deaf). There is also the option of arranging for video remote sign language interpreting. However, emergency bookings can be difficult as there are a limited number of sign language interpreters in Denmark.
- Paramedics, police and firefighters currently receive no training in how to give suitable assistance to D/HH individuals in emergency situations. There was a favorable reaction among workshop participants to the suggestion that future training should cover procedures for assisting D/HH individuals.
- D/HH individuals are likely to experience barriers in accessing trauma-informed aftercare services. Of the crisis psychologists in Denmark, there are only around 2-3 who are deaf. There is also a limited number of hearing crisis psychologists who are trained to service the needs of the D/HH population. Moreover, there is only one centre in Denmark (Psychiatric Centre Ballerup – Deaf Team) that specializes in the psychiatric treatment of D/HH individuals.

Information derived from these workshops provides a good starting point for the development of guidelines for best practice in relation to first response aid and psychosocial crisis management for D/HH individuals in the event of disasters. However, documenting the views of D/HH individuals regarding their experiences in accessing services is crucial to adequately inform the development of such guidelines.

This descriptive study is the first of its kind to be conducted in Denmark, and one of the first to be conducted in Europe. It sought to gain knowledge about the experiences of D/HH individuals in accessing first response, healthcare and trauma-informed aftercare services following disasters. Disasters are relatively uncommon in Denmark, hence recruiting D/HH individuals with disaster experience proved difficult. We therefore expanded our recruitment strategy to include D/HH individuals who have experienced other crisis situations. The

rationale behind this was that their experiences with accessing services can help highlight potential areas for improvement in service provision that are likely also to be relevant in times of disaster. Specifically, we wanted to learn what difficulties were encountered by D/HH individuals during interactions with first response and healthcare services, whether barriers were experienced in accessing trauma-informed aftercare services, and what future directions should be taken to better assist D/HH individuals in the event of disasters and crises.

Method

Participants

A total of 9 D/HH individuals who reported having experienced at least one disaster or other crisis situation were selected to participate in this descriptive study. All were of Danish Nationality. The majority ($n = 7$) were females. The age of the participants ranged from 27 to 81 years. Six identified themselves as deaf (D participant), and 3 as hard-of-hearing (HH participant). Of the D participants, 3 reported Danish sign language (DSL) as being their primary language. The remaining D participants had cochlear implants and used speech as their principle method of communication. All of the HH participants had hearing aids and used speech as their principle method of communication.

Recruitment efforts for participants were directed at organizations that serve D/HH individuals. Collaboration with the National Danish Deaf Association was initiated at the start of the project. Both sign language and written announcements for participation in the project were posted on the Association's website. Moreover, an email asking for help with recruitment was sent to the local Deaf Union in Odense. The authors also participated in an interview with a journalist working for the National Danish Hearing Association. A subsequent article about the project was published in the December 2013 issue of the Association's magazine (Engel, 2013). Six of the study participants responded to either the announcements or the article about the project. The remaining participants were recruited via the help of the local Deaf Union or through word-of-mouth.

Materials

Events list: Participants were presented with a list of traumatic and negative life events (Table 1). They were asked to select the event(s) they had experienced during their lives. Events could be selected according to direct (experiencing the event oneself) or indirect (witnessing or having a person close to oneself experience the event) exposure. The events list was compiled from relevant scientific research and clinical experience, variations of which been used in a number of previous studies investigating rates of trauma exposure in diverse samples of adolescents (c.f. Bödvarsdóttir & Elklit, 2007; Domanskaité-Gota, Elklit, 2002; Elklit & Christiansen, 2009; Elklit & Petersen, 2008; Petersen, Armour & Elklit, 2013).

(Insert Table 1 about here)

This inquiry was followed by the regular interview questions. The questions were designed to:

- Reveal any difficulties encountered during interactions with first response and healthcare services e.g. “what functioned well or poorly with regards to the communication between you and the professional(s)?”
- Ascertain whether barriers were experienced in accessing trauma-informed aftercare services e.g. “what functioned well or poorly in relation to you seeking psychological crisis treatment.”
- Ask for participants’ recommendations as to what future directions should be taken to assist D/HH individuals in the event of disasters and crises e.g. “if you were to recommend anything in relation to how the professional(s) could have assisted you better, what would it be?”

Due to the low number of participants who had experienced a disaster, hypothetical questions regarding recommendations for professionals in the event of a disaster were also asked e.g. “imagine that you were to experience a disaster where your life was in danger and you needed the assistance of first response services, what type of technical assistance would be useful?”

Procedures

Data collection took place between May 2013 and July 2014. The authors followed the Nordic ethical guidelines for psychologists. Prior to the interviews, participants were informed about the objectives of the study and about issues of anonymity and confidentiality. They were also informed about their option of dropping-out of the study at any time. All participants provided their written consent to participate in the study.

All interviews were conducted by the authors. Two of the participants were interviewed at the same time. The rest were interviewed on a one-to-one basis. Interviews lasted approximately 1-2 hours. Sign language interpreters were used for interviews with participants whose primary language was DSL. The majority of the interviews took place at the University of Southern Denmark or in the participants' homes. One interview took place at the National Danish Deaf Association, Copenhagen. Participants were reimbursed for travel expenses. All interviews were recorded on tape. Interviews were subsequently transcribed and reviewed by the authors.

Results

Difficulties encountered during interactions with first response and healthcare services

Difficulties encountered by participants during interactions with first response and healthcare services centered on three major themes.

1. First responders and/or healthcare professionals who were unprepared to meet the varying communication needs of D/HH individuals.
2. Problems gaining access to interpreter services at the hospital.
3. Healthcare professionals who relied on family members to relay information to D/HH individuals.

All participants expressed concerns about the problem of first responders and/or healthcare professionals being unprepared to meet the varying communication needs of D/HH individuals (Theme 1). As illustrated by the following citations.

They [the paramedics] didn't have much experience in dealing with deaf people. There was one who tried to speak a little clearer but that was it. They were very unsure. It has to do with ignorance of course. (D Participant)

It was my impression that the personnel in the different hospital departments didn't have much experience in dealing with deaf people. It's about gaining knowledge. Knowledge about the different ways of communicating with us. Knowledge about what kind of help is available and who pays. (D participant)

One participant expressed concerns regarding the unpreparedness of the whole healthcare system.

I don't think that the [hospital] departments are prepared for it. The whole [healthcare] system is not prepared to meet the needs of the hearing impaired. Children who are born deaf today are offered a CI operation, and the system thinks that there are no hearing impaired people left. The fewer deaf and hard-of-hearing people there are, then the less attractive it becomes to develop a system that can be used. (D participant)

In Denmark, hospitals are required to provide interpreter services for D/HH individuals. Furthermore, the hospital has to pay. Despite this, all participants whose primary language was DSL reported experiencing problems gaining access to a sign language interpreter at the hospital (Theme 2).

One D participant described being refused a sign language interpreter on several different occasions at the emergency room due to disputes about who should pay. She had to insist on getting one. Despite sending a letter of complaint to senior management and helping them compile a list of sign language interpreters, she experienced delays in getting a sign language interpreter on subsequent occasions. This resulted in conversations with the doctor being postponed. There were times when hospital personnel did not book her an interpreter altogether, thinking they could make do with writing short messages on pieces of paper.

Having to insist on getting a sign language interpreter creates extra stress for D/HH individuals who are already in a crisis situation.

There were times when I was so sick that I didn't have the energy to discuss it. Then there were days where I felt a little better and I thought 'No! Stop this! I want to have a sign language interpreter so we can communicate properly. It demands extra strength. (D participant)

It was an added stress for me. The situation was serious enough already. I had absolutely no resources left. It ought to be easy to get a sign language interpreter. (D participant)

Some D/HH individuals simply lack the speech and literacy skills to ask for a sign language interpreter, highlighting the extreme importance of hospitals providing a sign language interpreter automatically.

I am a resourceful person. I can speak and lip read a little. There are some deaf people who are not good at Danish. What about them? (D participant)

Gaining access to interpreter services becomes even more challenging when the D/HH person is a relative of a hospital patient and not the patient themselves. In this type of situation, the hospital is not required to pay for an interpreter. It is up to the D/HH individual to find funding. One D participant spoke of having a family member who was admitted to hospital following a serious accident. They could no longer sign together because the family member had become brain damaged and blind. The following excerpt illustrates the many difficulties she went through trying to obtain funding for a sign language interpreter.

The National Interpreter's Authority provides deaf people with a time bank of seven hours per year for private arrangements. I was forced to use these hours in connection with visiting my family member. I complained to the National Interpreter's Authority, the Appeals Board, and the Ministry of Social Affairs, but was rejected. It was very frustrating. I applied for an extra expense allowance through the municipality, but was rejected. I even complained to the Parliamentary Ombudsman and got rejected. I ended up borrowing an iPad through the municipality. It has a program which can translate text to speech and vice versa. There are times when my family member gets very confused and asks "why are you silent all of a sudden?" I try to explain to him that I am not being quiet but trying to write things down. He has difficulty understanding that. (D participant)

The issue of healthcare professionals relying on hearing relatives to relay information to D/HH individuals was brought up by a number of participants whose principle method of communication was speech (Theme 3). One D participant described an incident involving a family member who had been in an accident and needed an operation to get her CI re-attached. After the operation, the family member returned to the ward without sound on her CI.

The only way we could communicate together was if I looked directly at her so she could lip read. A nurse came in and stood behind her, rustling her pillow and talking. If I hadn't been there, then she wouldn't have gotten any of the information. I said to the nurse "it's no use standing there talking to her in this way. You need to face her so she can see your mouth." The nurse wasn't

particularly understanding about it, and this was in the department where they perform CI operations?!? Hearing impaired individuals have no chance of receiving information unless they have a relative with them. (D participant)

Having to rely on relatives in order to receive information can exacerbate feelings of dependency among D/HH individuals.

I get really angry because I want us hearing impaired people to be able to fend for ourselves. I take pride in being able to fend for myself without having to ask for help. (D participant)

It is inappropriate for health professionals to rely on relatives to relay information to D/HH individuals as there is a chance they may leave out important details without realizing. Furthermore, it is unreasonable to burden relatives with this extra responsibility in an emotional situation that often exists in a crisis situation.

Some participants spoke of healthcare professionals who were unwilling to adjust their speech or try different forms of communication when hearing relatives were not present.

I went to see a specialist. I couldn't hear what he was saying at all. I told him that I couldn't hear but he maintained his original tone. He did nothing to help me. I kept saying it to him but he was too busy. I felt that I was pushed out of the door very quickly. I felt bad about it because some family members of mine had offered to come with me. I had told them that I could handle it alone. But I didn't. He could have spoken louder. He could have looked at me. He could have spoken more slowly. (HH participant)

A nurse came into my room and started saying a whole lot even though she knew I had no sound on my CI. I said to her "it doesn't help you saying a whole lot of things to me. Write it down!" She continued [talking] anyway. Finally she went to get some paper. They [hospital personnel] have to do this if they want to communicate with us. I wonder why they can't figure out how to communicate in other ways. I'm thinking that they could make use of technical aids. (D participant)

Thus D/HH individuals risk not receiving the information they need when hearing relatives aren't present. This can have serious consequences, as illustrated by the following citation.

Someone I know got hit by a car. His hearing aid was destroyed. They [hospital personnel] didn't communicate with him at all. They misunderstood him until a family member came and could communicate for him. They did some things, such as putting a catheter in without letting him know. They neglected to inform him about what they were going to do before they did it. It was deeply traumatic for him. (HH participant)

Barriers in accessing trauma-informed aftercare services

Two major themes arose from D/HH participants' accounts of barriers experienced in accessing trauma-informed aftercare services.

- Lack of all-D/HH support groups for victims of trauma and their relatives
- Limited number of crisis psychologists who are trained to service the needs of the D/HH population.

In Denmark, there are no all-D/HH support groups for victims of traumatic events and their relatives (Theme 1). D/HH individuals have to settle for trying to find a hearing support group. One participant reported being rejected by a hearing support group.

I wanted to join a support group for relatives of people with brain damage. But they [the group] rejected me because of difficulties related to sign language interpretation (D participant).

Another participant told of her extreme difficulties with finding a support group even for hearing individuals.

It was almost impossible for me to find a [hearing] support groups for relatives of cancer patients. This is wrong. Relatives are also affected by cancer. Relatives witness the sick person change. And things will never be the same again. What I want to do now is to create a support group for deaf relatives [of cancer patients] because I don't want others to go through the same things as me - to feel completely alone and isolated and not having the opportunity to contact others (D participant).

Participants expressed concerns regarding the limited number of crisis psychologists in Denmark who are trained to service the specific needs of the D/HH population (Theme 2). Participants whose primary language was DSL conveyed that they would prefer to work with

a crisis psychologist who is proficient in DSL. However, when seeking a crisis psychologist, the reality for D/HH individuals who rely on DSL to communicate is that they often end up having to choose a hearing crisis psychologist who understands trauma but cannot sign.

One D participant was faced with the dilemma of having to choose between going to a hearing psychologist who could sign and a hearing psychologist with the right trauma specialty.

I remember thinking that I had to find the right psychologist. At first, I wanted to choose one who had experience working with deaf people, so I wouldn't have to explain that I was deaf and all the things connected with that. But I couldn't find one who was trained in sign language and who had the right [trauma] specialty. I had to prioritize and ended up choosing the one with the right specialty because that was the primary purpose of me going to see a psychologist. I was prepared for the fact that she [the psychologist] would ask me questions about deafness and sign language. (D participant)

Interestingly, D individuals do not necessarily want to work with a deaf psychologist due to issues of trust and confidentiality.

There probably wouldn't be so many deaf people who would choose to go to a deaf psychologist. In principle everybody [in the Deaf community] knows everybody. There would be a chance of meeting one's psychologist at a party. I know that they [psychologists] have a duty of confidentiality, but it is wrong. It is better to go to a hearing psychologist who is more neutral. (D participant)

Furthermore, one D participant reported feeling that deaf psychologists are less skilled than their hearing counterparts.

If I had to see a psychologist again, I think I would choose a hearing psychologist. As long as I feel that there aren't enough skilled deaf psychologists. I think that hearing psychologists are further ahead professionally. (D participant)

For some D/HH individuals, the use of interpreter services is often a necessity for sessions with a hearing crisis psychologist. Fortunately, the National Interpreter's Authority has a budget for psychological crisis treatment, and there is no limit to the number of interpreting

hours a D/HH person can get. The responsibility of booking a sign language interpreter lies with the D/HH individual, not the psychologist.

Using a sign language interpreter for psychological crisis treatment can, however, cause some challenges. One D participant described working with a sign language interpreter as a strange experience because it disrupted the flow in conversation and his ability to communicate directly with the psychologist. Other problems reported by participants included lack of chemistry with the sign language interpreter and fear of being misinterpreted.

The chemistry between us was poor. It is important for me to have an interpreter who I have good chemistry with so that I can feel comfortable. I don't want to have to repeat myself and I don't want to feel misunderstood. But this interpreter interrupted me all the time because she didn't understand me. (D participant)

In Denmark, the likelihood of a D/HH person using a sign language interpreter for more than one venue is high. This can be problematic.

I didn't want to use an interpreter from the centre where I usually book one from because I use that centre in connection with my work. I wanted to keep things separate. I know that sign language interpreters have a duty of confidentiality, but it would always be in the back of my mind - that they would know something about me. (D participant)

For psychological sessions to function with a sign language interpreter, certain practicalities need to be in place.

The psychologist was really talented. The sign language interpreter ensured that the conversation flowed throughout. It meant a lot to me that I had the same interpreter with me for all my sessions [with the psychologist]. It made me feel secure. The interpreter knew my background and language code. We could read and understand each other and we didn't need to start from scratch each time (D participant).

Participants whose principle method of communication was speech expressed that they would prefer to work with a hearing crisis psychologist who has knowledge about deafness/hearing loss. Of those who reported having been to see a crisis psychologist, one HH participant

experienced no problems regarding communication because the psychologist had made sure to sit directly opposite her. The other HH participant expressed dissatisfaction with her psychologist because he sat away from the light resulting in her having to use all her energy on trying to hear what he was saying.

Future directions

A number of suggestions were provided for improvements in the provision of services for D/HH individuals in the event of disasters and accidents. Participants would like to see more sign language interpreters be made available, so that D/HH individuals will have a better chance of getting one at the scene of an emergency as well as in crisis situations at the hospital. Some participants also felt it was important that funding be made available to finance sign language interpreters for D/HH individuals who are relatives of hospital patients. With regard to trauma-informed aftercare services, participants would like to see them expanded to include all-D/HH support groups for trauma victims and their relatives as well as more crisis psychologists who are trained to service the specific needs of the D/HH population. In considering the different professionals (first responders, healthcare professionals in hospital settings, crisis psychologists) who are likely to encounter individuals with experiences of disasters and crises, participants felt it was important for them to acquire more knowledge about the varying communication needs of D/HH individuals. Participants would like for knowledge of how to service the needs of D/HH individuals to be incorporated into the training of first responders and for brochures on deafness and hearing loss to be distributed to different workplaces (e.g. hospitals, doctor's surgeries, psychology clinics). Finally, participants offered a number of practical recommendations for first responders, healthcare professionals (hospital settings) and crisis psychologists (Table 2).

[Insert Table 1 about here]

Summary and conclusion

The study sample encompassed D/HH individuals who had experienced a number of diverse crisis situations; including disasters (see Table 1). This enabled us to gather a range of answers to the questions we posed. This study indicates that D/HH individuals encounter

unnecessary difficulties during interactions with first response and healthcare services following experiences of disasters and crises. They also face additional barriers in accessing appropriate trauma-informed aftercare services.

Regarding difficulties encountered during interactions with first response and healthcare services, participants expressed concerns about the problem of first responders and/or healthcare professionals being unprepared to meet the varying communication needs of D/HH individuals. A specific issue for participants whose primary language was DSL was problems gaining access to interpreter services at the hospital. An issue brought up by a number of participants whose principle method of communication was speech was the problem of health professionals relying on hearing relatives to relay information to D/HH individuals.

Barriers reported by participants in accessing trauma-informed aftercare services included a lack of all-D/HH support groups for victims of traumatic events and their relatives. In addition, participants expressed concerns about the limited number of crisis psychologists who are trained to service needs of the D/HH population. The preference of participants whose primary language was DSL is to work with a hearing crisis psychologist who is trained in DSL. Their experiences in using a sign language interpreter during sessions with a hearing crisis psychologist vary, with some feeling that interpreters disrupted the flow in conversation and misinterpreted what was being said. The preference of participants whose principle method of communication was speech is to work with a hearing crisis psychologist who has knowledge about deafness/hearing loss.

Overall, the present study illustrates that there are gaps in the provision of services for D/HH individuals in the event of disasters and crises. Participants provided important suggestions for how the provision of services for D/HH individuals can be improved. Furthermore, they provided us with sufficient information to compile a list of practical recommendations for first responders, healthcare professionals (hospital settings) and crisis psychologists (Table 2). Ensuring equal access to first response, healthcare and trauma-informed aftercare services for D/HH individuals with experiences of disasters and crises is an issue that needs to be addressed in Denmark. Our findings can inform policy makers and others authorities in the position to enhance existing services and/or develop new services for this target population.

The limitations of the present study are acknowledged. The reliance of this study on convenience sampling and its small sample size limit the generalizability of the findings. The

study sample comprised of D/HH participants whose principle method of communication was either DSL or speech. However, many D/HH individuals do not know DSL and have lower than average Danish language skills. It is possible that the experiences reported by the participants in this study present a more positive depiction of service provision in the event of disasters and crises than those of the target population at large. While some of our recommendations may also apply to the provision of services for other D/HH populations, communication needs are diverse, and future research is needed to yield additional recommendations.

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Table 1. Traumatic and negative life events and number of D/HH participants who experienced them

Type of event	Direct exposure	Indirect exposure
	Participants who experienced them (n)	Participants who experienced them (n)
Traffic accident	4	1
Other serious accidents	2	1
Rape	1	-
Witnessed others being injured or killed	-	-
Came close to being injured or killed	1	-
Threatened to be beaten	-	-
Near drowning	2	-
Attempted suicide	1	-
Robbery/theft	1	-
Serious illness	2	3
Shooting, fighting	-	-
Death of a family member	3	-
Divorce	1	-
Sexual abuse	1	-
Physical abuse	-	-
Neglect	-	-
Humiliation and persecution by others (bullying)	3	-
Other (please state)	2 (hurricane)	1 (explosion)

Table 2. Practical recommendations first responders, healthcare professionals (hospital settings) and crisis psychologists, as provided by participants

<p>First responders (paramedics, firefighters, police)</p> <p><i>First steps at the scene of an emergency</i></p> <ul style="list-style-type: none"> • Create and maintain good eye contact • Try to create a calm and secure atmosphere • Use intuitive signs (yes, no, calm, come, stay there) • Point to body parts (arms, legs, head, stomach etc.) to find out where the person may be injured • Speak slowly and clearly but avoid shouting <p><i>Guidelines for what to do when it is not possible to speak with the person directly</i></p> <ul style="list-style-type: none"> • Try to write things down (have a pen and paper ready) • Use action cards • Use postcards, mobile phones or iPads/tablets with pictures of the sign language alphabet. • Use Apps for mobile phones or iPads/tablets that can translate speech to text (e.g. SpeakRead). • Learn basic phrases in sign language (e.g. “are you deaf?”, “are you OK?”, “do you need a sign language interpreter?”) • Book an acute sign language interpreter for D/HH individuals who require one <ul style="list-style-type: none"> - Have a list of interpreting agencies for emergencies - Let the person know that a sign language interpreter is on the way. • In the event that a sign language interpreter is not able to attend the scene, arrange for video remote interpreting. <ul style="list-style-type: none"> - This can be done via video communication Apps (e.g. Polycom) that can be downloaded on mobile phones and iPads/tablets
<p>Healthcare professionals (hospital settings)</p> <p><i>Recommendations regarding D/HH patients whose primary language is sign language</i></p> <ul style="list-style-type: none"> • Book a sign language interpreter <ul style="list-style-type: none"> - Have a list of interpreting agencies - Let the patient know that a sign language interpreter is on the way • Be aware that exchanging written notes is only appropriate for brief interactions and not for more complicated interactions such as discussion of treatment options with the doctor. <p><i>Recommendation regarding D/HH patients who rely on assistive hearing devices</i></p> <ul style="list-style-type: none"> • Look directly at the patient, speak slowly and clearly • Ensure good lighting for effective communication • Be aware if the person’s hearing device has been removed or switched of. If it has then: <ul style="list-style-type: none"> - Look directly at the person when speaking to enable lip reading. - Write things down - Use Apps for mobile phones and iPad/tablets that translate speech to text (e.g. SpeakRead) <p>Recommendations regarding all D/HH patients</p> <ul style="list-style-type: none"> • Avoid communicating with relatives • Ensure the patient receives all relevant information
<p>Crisis psychologists (trauma-informed aftercare)</p> <p>Recommendations regarding D/HH clients using a sign language interpreter</p> <ul style="list-style-type: none"> • Sit directly opposite the client and avoid looking at the sign language interpreter when speaking and listening <ul style="list-style-type: none"> - This will ensure more direct communication with the client • Be aware of the importance of there being good chemistry between the client and sign language interpreter <ul style="list-style-type: none"> - Poor chemistry can disrupt the flow in conversation and lead to misunderstandings. • Be aware of the importance of the client using the same sign language interpreter for each session <ul style="list-style-type: none"> - Using the same interpreter for each session ensures that focus can be kept on the crisis care itself and not on building new relationships. <p>Recommendations regarding D/HH clients who rely on assistive hearing devices</p> <ul style="list-style-type: none"> • Sit directly opposite the client, speak slowly and clearly • Ensure good lighting