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Inequalities in Access to Health Services Faced by the Population with Hearing Loss in Greece: a Cross-Sectional Study.

Abstract

Aim was the investigation of the perceived barriers in access to healthcare among population with hearing loss in Greece (deaf and hard of hearing). The sample consisted of 86 deaf and 54 hard of hearing adults that live in Attica. Core demographic data and information regarding participants' access to health services was gathered using a self-completed structured questionnaire. The 93% of deaf and the 77.8% of hard of hearing struggled to navigate the healthcare system and reported barriers in access to health services and unmet needs ($p=0.009$). There were difficulties in booking an appointment ($p<0.001$), lack of appropriate administrative means (e.g. booking via email) so as to book a visit without the mediation of another person ($p<0.001$), long waiting time ($p=0.01$) and intention to manage very consciously the limited benefits (regarding the free interpret hours) they are entitled to ($p<0.001$). Regarding the engagement with healthcare providers, poor adherence to medical instructions was revealed, as the 41.2% of deaf and the 60% of the hard of hearing did not comply with the proposed medication, making a self-assessment that they did not need to ($p=0.02$). This minority population faces disproportionate difficulties in access to healthcare and therefore significant interventions to tackle these barriers need to be considered.

Keywords: Deaf; Hard of hearing; health services accessibility; medical compliance, hearing health inequalities

Main Text

1. Background

Hearing loss is a major public health concern, as nearly half a billion people globally live with disabling hearing loss, which refers to the hearing threshold of 41 decibels or greater in the better hearing ear [1]. International studies have shown that the people with hearing loss face multiple barriers to receiving adequate healthcare, have a deficiency in knowledge of health matters and use the health services in a different way comparing to the hearing people [2, 3]. The recent study of Kuenburg et al. [4] reviewed the literature from 2000 to 2015 regarding the access to healthcare among deaf, and revealed that they face significant challenges in their communication with health providers. Moreover, they have serious health knowledge gaps which affect their health promotion and disease prevention.

In Greece, in spite that hearing loss is an important public health and societal concern, the specific population is literally absent from health policy measures that could minimize the barriers they face in their access to healthcare services [5, 6]. It is worth mentioning that since 2010, the financial crisis has seriously affected Greece's economy, which has lost more than the 25% of Gross Domestic Product (GDP). In addition, large-scale austerity measures have been adopted, that lead to the significant reduction to public funding. That severity of the economic downturn leads to the significant reduction of the government grant for the payment of the sign language interpretations. Thus, since 2011, the Sign language users in Greece are able to cover their communication needs making use of only 25 hours of free interpretation per year. After the consumption of these 25 free hours, they have to pay privately for the cost of interpretation so as to cover their communication needs. Importantly, the price of an hour of interpretation is relatively higher when the topic is related to a health matter (e.g. 50€ as a standard payment plus 25€ per hour). That means that many people who communicate primarily in sign language face serious inequalities in their access to healthcare and their communication with health providers [7].

To date, these barriers have not been taken into account, mainly due to a knowledge gap regarding the multiple barriers that this population faces to health. Aim of this study is to explore the perceived barriers of deaf and hard of hearing people in Greece, as a crucial step to the health policy actions towards an adequate, appropriate and ethical health care of this minority population.

Methods

Participants

In order to examine different subgroups of population with hearing loss, as they differ substantially in their cultural and communicational characteristics [8], we examined cross-sectionally 86 d/Deaf and 54 hard of hearing adults, aged 18-65 years old. The distinction between the terms "deaf" and "hard of hearing" was based on the categorisation of the population with hearing loss of Tsimpida et al. [8], according the participant's language preferences and cultural self-identification.

As there are not official records of this population and random sampling was not feasible, we used a convenience sampling technique for recruitment, by visiting the five (5) Deaf Clubs of the Hellenic Federation of the Deaf, located in Attica region.

Materials

Data collection was made using a questionnaire that was specially developed for this study, it was based on the relevant literature and on another previous study concerning public health services knowledge and utilization, which conducted by authors [9]. The first section of the questionnaire explained the purpose of the study, providing contact details for any queries. Next, core sociodemographic data was gathered, such as gender, age, marital status, number of household members and indicators of socioeconomic position (educational status, occupation and income). The third section consisted of questions on participants' access to health services characteristics. We

calculated Cronbach's alpha equal to 0.92, which indicated excellent internal consistency of the questionnaire.

We carried out a pilot study with six participants which we considered as representative of the specific population, in terms of educational and other needs, so as to examine issues of comprehensibility, as the written form of spoken language is considered as a second language for the deaf, according to the Greek laws. The validity of the questionnaire was very satisfying and therefore no significant corrections were made by those that participated in the pilot study.

Procedure

The collection of the data was done in person, using a convenience sampling technique. Questionnaires were distributed and collected from April 2015 to June 2015. The previous engagement of the first author in the Deaf community, as she is certified in GSL, reinforced the feelings of trust and comfortability of the participants leading to a high response rate (91%).

All participants gave their consent and were informed about the aim and procedures of their participation in this study, which was voluntary and anonymous. Personal data of the participants were not registered at any stage of the study. Those that used to communicate in sign language were assisted by DT when necessary, so as to prevent potential difficulties they might face when completing a lengthy questionnaire.

All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The study protocol and the questionnaire were approved from Hellenic Federation of the Deaf, which is the official representative association of deaf and hard of hearing people in Greece, with the reference number 435/13-3-2015.

Statistical analysis

Continuous variables are presented as mean (standard deviation, SD), while categorical variables are presented as absolute and relative frequencies. The normality assumption was evaluated using Kolmogorov-Smirnov criterion ($p > 0.05$ for all variables), histograms and normal probability plots.

Associations between categorical variables were assessed with chi-square test, while between categorical and ordinal variables with chi-square trend test. Mann-Whitney test was applied for the association between a quantitative variable and a dichotomous one when the quantitative variable did not follow normal distribution. In addition, we used Analysis of Variance (ANOVA) to assess the relation between a quantitative variable and a categorical variable when the quantitative variable followed normal distribution and Kruskal-Wallis test when the quantitative one did not follow normal distribution. Due to small number of the participants we did not perform multivariate analyses. The two-tailed significance level was set ≤ 0.05 . Data were analyzed using IBM SPSS 21.0 (IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp).

Results

The participant's socio-demographic characteristics are presented in Table 1. Among the deaf participants, the 91.9% used to communicate in Sign language. Among the hard of hearing, the 50% used to communicate via lip-reading, the 29.6% in Greek Sign language, while the 20.4% responded that still used the oral method for their communication.

Participants' access to health services characteristics are presented in Table 2. In this study we found that people with hearing loss were struggling in their access to health services, as during the past 12 months the 48.8% of deaf and the 22.2% of hard of hearing did not visit a healthcare provider despite it was urgent because they did not know which service to choose ($p = 0.002$). But even if they knew which service to choose, the level of difficulty for booking a medical appointment for a health visit to a doctor or a hospital was extremely high for the 58.1% of deaf and the 22.2% of hard of hearing ($p < 0.001$). The 53.5% of deaf and the 20.4% of hard of hearing did not visit a healthcare provider due to inability to contact at their own the healthcare service, to get an appointment ($p < 0.001$). It is overwhelming that the 59.3% of deaf did not visit a healthcare provider -despite it was urgent- because preferred not to consume from the 25 free hours of interpretation per year ($p < 0.001$).

The 86.7% of them strongly agreed with the statement “the Sign language interpretation cost has to be full paid by the State” ($p=0.05$). Furthermore, the 54.7% of deaf and the 33.3% of hard of hearing did not visit a health service because of the long waiting time for book appointment ($p=0.01$). Finally, the 93% of deaf and the 77.8% of hard of hearing did not visit a health service each time they needed to ($p=0.009$).

The fact that there was a difficulty for the participants in understanding the medical instructions (Table 2), had possibly an effect to the poor adherence to medical treatment; the 41.2% of deaf and 60.0% of hard of hearing did not comply with the proposed medication, as they had decided that the medication was not necessary ($p=0.02$). After all the above, it seems well expected that the 82.6% of deaf and the 48.2% of hard of hearing agreed or strongly agreed with the statement “I would visit more frequent a doctor or a health service if the communication was easiest” ($p<0.001$).

Table 1. Socio-demographic data of the participants

Variable	Hard of Hearing	Deaf
Gender		
Women	32 (59.3)	46 (53.5)
Men	22 (40.7)	40 (46.5)
Age (years) ^a	41.4 (11.8)	38.1 (10.7)
Marital Status		
Unmarried	16 (29.6)	37 (43.0)
In cohabitation	14 (25.9)	11 (12.8)
Married	14 (25.9)	20 (23.3)
Divorced	7 (13.0)	13 (15.1)
Widowed	3 (5.6)	5 (5.8)
Number of household members ^b	2.7 (1.2)	2.6 (1.2)
Existence of hearing person in household	38 (70.4)	37 (43)
Educational attainment		
Junior High	4 (7.4)	11 (12.8)
High School	19 (35.2)	59 (68.6)
College	3 (5.6)	2 (2.3)
Technological Educational Institution	5 (9.3)	0 (0)
University	11 (20.4)	10 (11.6)
Master's/Doctorate degree	12 (22.2)	4 (4.7)
Work Status		
Unemployed	8 (14.8)	21 (24.4)
Household keeper	3 (5.6)	5 (5.8)
Income collection	0 (0)	1 (1.2)
Student	1 (1.9)	5 (5.8)
Unskilled worker	4 (7.4)	6 (7.0)
Private sector employee	10 (18.5)	30 (34.9)
Public sector employee	18 (33.3)	16 (18.6)
Entrepreneur	6 (11.1)	0 (0)
Retired	4 (7.4)	2 (2.3)
Family annual income (euro) ^b	15.000 (75.000)	15.000 (49.000)

Values are expressed as n (%) unless otherwise is indicated.

^a Mean (standard deviation)

^b Median (range)

Table 2.
Participants' access to health services characteristics

Variable	Hard of Hearing	Deaf	P-value
Health insurance coverage booklet			0.99 ^a
Yes	54 (100.0)	86 (100.0)	
No	0 (0.0)	0 (0.0)	
Health insurance provider			0.5 ^a
IKA	19 (35.2)	51 (59.3)	
Public health insurance	23 (42.6)	25 (29.1)	
OAEE	9 (16.7)	9 (10.5)	
OGA	1 (1.9)	1 (1.2)	
Other	2 (3.7)	0 (0.0)	
Number of health visits to doctor or hospital during the past 12 months ^b	5 (5)	4 (10)	0.1 ^c
Number of non-visit to a doctor or hospital in spite of being a need during the past 12 months ^b	2 (3)	2 (6)	0.1 ^c
<u>Reasons for avoiding medical care</u>			
I made the self-assessment that the reason was not serious			0.99 ^a
No	27 (50.0)	43 (50.0)	
Yes	27 (50.0)	43 (50.0)	
I didn't know which service to choose			0.002^a
No	42 (77.8)	44 (51.2)	
Yes	12 (22.2)	42 (48.8)	
I couldn't book an appointment because I need assistance to do so			<0.001^a
No	43 (79.6)	40 (46.5)	
Yes	11 (20.4)	46 (53.5)	
Health insurance coverage had expired			0.3 ^a
No	54 (100.0)	83 (96.5)	
Yes	0 (0.0)	3 (3.5)	
Long waiting time for arrange an appointment			0.01^a
No	36 (66.7)	39 (45.3)	
Yes	18 (33.3)	47 (54.7)	
Long patient waiting room "wait"			0.1 ^a
No	40 (74.1)	52 (60.5)	
Yes	14 (25.9)	34 (39.5)	
High health visit cost			0.9 ^a
No	36 (66.7)	56 (65.1)	
Yes	18 (33.3)	30 (34.9)	
Lack of Sign Language interpreters availability			<0.001^a
No	54 (100.0)	62 (72.1)	
Yes	0 (0.0)	24 (27.9)	
I preferred not to consume from the 25 free hours of interpretation per year			<0.001^a
No	44 (81.5)	35 (40.7)	
Yes	10 (18.5)	51 (59.3)	

Continued

Table 2. (continued)

Participants' access to health services characteristics

Variable	Hard of Hearing	Deaf	P-value
I visited a health service each time I needed to			0.009^a
No	42 (77.8)	80 (93.0)	
Yes	12 (22.2)	6 (7.0)	
Cases that you did not take medicines while you need it			<0.001^a
No	39 (72.2)	35 (40.7)	
Yes	15 (27.8)	51 (59.3)	
Most important reason for non-medical compliance			0.02^a
No medical prescription and inability of health cost coverage with private payment	3 (20.0)	22 (43.1)	
Inability of payment of health cost coverage percentage	1 (6.7)	8 (15.7)	
Self-assessment that the medication was not necessary	9 (60.0)	21 (41.2)	
Other reason	2 (13.3)	0 (0.0)	
Who undertakes to arrange a medical appointment for a health visit to a doctor or a hospital			0.05 ^a
A Sign Language interpreter	0 (0.0)	11 (12.8)	
The Hellenic Federation of the Deaf	0 (0.0)	6 (7.0)	
A hearing friend	12 (22.2)	18 (20.9)	
A hearing family member	30 (55.6)	44 (51.2)	
Me	12 (22.2)	7 (8.1)	
Level of difficulty for arranging a medical appointment for a health visit to a doctor or a hospital			<0.001^d
Not at all difficult	7 (13.0)	4 (4.7)	
Slightly difficult	7 (13.0)	4 (4.7)	
Somewhat difficult	10 (18.5)	18 (20.9)	
Moderately difficult	18 (33.3)	10 (11.6)	
Extremely difficult	12 (22.2)	50 (58.1)	
Direct booking of a medical appointment for a health visit to a doctor or a hospital (via sms. email. fax)			<0.001^a
Yes	11 (20.4)	2 (2.3)	
No	43 (79.6)	84 (97.7)	
Number of days that a Sign Language interpreter has to be booked before a medical appointment for a health visit to a doctor or a hospital ^b	4 (5)	4 (8)	0.3 ^c
Number of agreement with the statement "the Sign Language interpretation cost has to be full paid by the State"			0.05^b
Strongly disagree	0 (0.0)	0 (0.0)	
Disagree	0 (0.0)	0 (0.0)	
Neither agree nor disagree	2 (13.3)	3 (4.0)	
Agree	4 (26.7)	7 (9.3)	
Strongly agree	9 (60.0)	65 (86.7)	

Continued

Table 2. (continued)

Participants' access to health services characteristics

Variable	Hard of Hearing	Deaf	P-value
Number of agreement with the statement "I would visit more frequently a doctor or a health service if the communication was easiest"			<0.001 ^a
Strongly disagree	3 (5.6)	2 (2.3)	
Disagree	9 (16.7)	2 (2.3)	
Neither agree nor disagree	16 (29.6)	11 (12.8)	
Agree	17 (31.5)	19 (22.1)	
Strongly agree	9 (16.7)	52 (60.5)	

Values are expressed as n (%) unless otherwise is indicated.

* $p < 0.05$.

^a χ^2 test

^b Median (range)

^c Mann-Whitney test

^d χ^2 test for trend

Discussion

Previous studies have revealed that the deaf sign language users are not quite familiarized with the access to health services [10, 11], and also face major challenges and barriers when navigating into the healthcare system [7, 12, 13]. High percentages of the participants that did not visit a healthcare provider -despite it was urgent- because they did not know which service they had to choose, had been found also in Sheppard & Badger study [14]. In that study, the deaf participants, even if they had understood the urgency of a healthcare visit, it was quite common not to ignore where they should go, as the contact with the health system was a source of fear, embarrassment, sadness and frustration.

In addition, in our study, even if they knew which service to choose, the level of difficulty for arranging a medical appointment for a health visit to a doctor or a hospital was high for both deaf and hard of hearing participants. Frequently, they could not manage to book an appointment because they needed assistance to do so and this was an important reason for avoiding medical care, that was found also in SignHealth study [15], at a percentage of 33% (n=176). That study also had revealed that while many Deaf preferred to book a medical appointment in sign language, they could not do so and had to ask a friend or a hearing family member to book the appointment on their behalf. Difficulties, as have been shown also in other studies, are related to access to health care and they face serious obstacles, for example the lack of adequate mediation to close an appointment [16, 17, 18]. In our study, the percentage of the deaf participants who could book a medical appointment for a health visit at their own was extremely low and it is worth mentioning that it was exactly the same percentage of the deaf participants for whom the Greek Sign language was not the preferred method of communication (8.1%). The majority of the participants asked from a hearing member of their family or a friend to act as mediator so as to arrange a medical appointment. However, over the half of the deaf participants (57%) had not a hearing member among their family to help them to arrange the appointment, which made the situation difficult for them.

In another study [19], the deaf participants were not able to call in order to book an appointment, because the doctors had not a telecommunications device for the deaf (TDD). Electronic devices for provision of email and/or text software are crucial for persons with hearing or speech difficulties, otherwise deaf patients must go to the health service to book in

person their appointment, which requires a substantial amount of time and effort. Without adequate provision of email and text software, deaf patients must spend a great deal of time and effort going to the clinic to book in person [20]. According to SignHealth study [21], that carried out by the University of Bristol, in this internet enabled world of connectivity, the 45% (n=135) of Deaf people still had to walk into their surgery to make an appointment, because of the lack of other appropriate ways to do that. The report of Action on Hearing Loss [22] that explored the experiences of patients with hearing loss in their access to health services, revealed that there was a marked difference between how patients contact their surgery to book appointments and how they would prefer to. Approximately one in 10 respondents (9%, n=55) used to contact their GP surgery by email, while around three in 10 (31%, n=188) identified that this would be their preferred method of contact. In our study, the direct booking of a medical appointment for a health visit to a doctor or a hospital (via SMS, email, fax) was feasible for only the 2.3% and the 20.4% of the deaf and hard of hearing, respectively ($p < 0.001$). We can understand the criticality in emergencies when a person with hearing loss has no way to communicate to declare his need or to call an ambulance. In the Sheppard study [23], participants encountered difficulty in closing an appointment or calling an ambulance to an emergency. In addition, men were found to have an increased risk of injuries during emergencies. In medical emergency situations, the system's resources are not sufficient, leaving little room for attention to special populations [24].

More than one out of four deaf participants in our study reported that they do not make use of health services due to the lack of an interpreter to accompany them ($p < 0.001$). Previous studies had shown that the lack of sign language interpreters availability force the deaf users of health services to seek from listening members of their family or hearing friends interpret the medical instructions, despite their lack of knowledge of medical terminology. Questions are raised about not only the impartiality and credibility -as there is a possibility of concealment or paraphrasing of the content provided by the physician or patient's information- but also for the compromise of the right to autonomy and privacy for sign language users [18, 20, 24, 25,]. The spoken language is a serious obstacle for those that communicate in sign language in their attempt to obtain health information, before, during and after a medical appointment [26, 27, 28]. This population is at greater risk of poor communication when accessing health services compared to immigrants who do not speak the language in the country they live [29, 30]. Thus, they face substantial barriers not only in their access to primary health care but also at all stages of the healthcare process [7, 11, 16, 17, 22, 25, 31, 32, 33]. Furthermore, they have a serious risk of complications during a disease, while there is limited access to information about the outcome of their illness and it is not always possible to rearrange the visit or contact the doctor to clarify health issues [11, 34, 35]. This can explain the high percentage of 50% of the participants in our study that made self-assessments that a health issue was not so serious for using the health services and finally avoided medical care. Moreover, previous studies have shown that the sign language users face significant difficulties which is the main reason for their reduced use of healthcare services even when they need them [15, 17, 29, 36, 37, 38].

Raising serious concern that more than the half of deaf participants in our study mentioned that they tried to save some of the 25 free hours of interpretation per year, by not making use of health services when actually needed ($p < 0.001$). That explains why the majority of the participants strongly agreed that the Sign language interpretation cost has to be full-paid by the State ($p = 0.05$). Smeijers and Pfau also reported this matter in their study [39], where the deaf avoided to hire interpreters for need of short consultations, as they had limited paid by the government of the Netherlands interpreter hours. In order to achieve equality of access, it has been written in the literature that there should be a permanently

available sign language interpreter in each hospital. This could lead to immediate and effective communication with sign language users who come with a serious illness or with injuries in the health unit [18, 27]. However, Greek hospitals do not include sign language interpreters in their staff.

Another reason for the inequalities in access to health services that Deaf are facing [27], is the lack of deaf awareness from health professionals [39, 40]. When the preferred communication method for a patient with hearing loss is sign language, the presence of the interpreter is also useful for the physician himself, as effective communication is crucial for the explanation of the treatment he recommends, following an adequate clinical assessment and diagnosis [21, 41]. That could lead to risk for medical errors, which could also cause a misunderstanding in the given prescription [12, 19]. On the other hand, the patients are not allowed to discuss their concerns [7, 42], which ultimately leads to a reduced understanding of therapeutic interventions and illnesses [43]. A previous study (Shakespeare et al., 2009) revealed that almost one-third of deaf and hard of hearing sign language users in the UK, do not know how often to receive their medication. In another study [38], the 77% of sign language users faced difficulties in communication with doctors during a hospital visit. After the consultation, the 33% of them were not sure about the medical prescription and finally got too much or too little medication. Phenomena such as these in the study of Kritzinger et al. [10], where the majority of the deaf participants often come out of a medical appointment without even understanding the diagnosis or the reasons for the proposed medication, maintain the insecurity of deaf patients in contacting the health system and lead to not using of health services they actually need. Thus, the overall health status of the deaf people, the adoption of a healthier lifestyle and, consequently, the improvement of the health outcomes of this under-served cultural and linguistic minority of the population, are seriously at risk [10, 11, 20, 44]. This is confirmed also by the high percentage of the participants in our study that made a self-assessment that a proposed medication was not necessary, as a reason for their non-medical compliance.

The communication between hard of hearing and health professionals is relatively easier and these phenomena happen rarely. They are usually more confident to ask what they do not understand by the process, the diagnosis or treatment in the public health system, and thus show better knowledge of their medical history, their illnesses and the necessary clinical protocols [10]. It does not, therefore, makes impression that in the present study hard of hearing participants took the necessary medication in a greater proportion than the deaf ones.

Despite the existence of legislation in Greece for priority on health services for hearing impaired people, this is not always applied in daily practice. This is confirmed by the fact that the 54.7% of deaf participants and the 33.3% of hard of hearing did not visit a doctor or a health service due to long waiting time for arranging an appointment ($p=0.01$). In SignHealth study [21], it was found that the waiting time for a health service was an important criterion for how people with hearing loss experiencing the access to a health service, and also a rejection criterion for a service when they do not feel they are served in priority while they should to. In the same study was also mentioned the "fatigue barrier" for deaf, which refers to the fact that people who suffer from repeated negative experiences in accessing and communicating when navigating the health system, due to their low expectations and continuous frustrations, are leaded to a reduced use of health services and unmet needs. After the above, it is easily explained why the vast majority of the deaf participants in our study (82.6%) agreed or strongly agreed with the statement "I would visit more frequently a doctor or a health service if the communication was easiest" ($p<0.001$).

Limitations

The main limitation of our study was that it was not possible to take into account the language preferences of the participants in the analysis, due to the small number of participants in some categories of the initial classification ($n \leq 10$). Thus, we considered only two broader categories of the population with hearing loss, which was based on their self-classification as deaf or hard of hearing. However, the population with hearing loss is consisted of subgroups with different characteristics [2] and the examination of a larger sample in future studies could make feasible the exploration of differences among subgroups. The place of residence plays a significant role in the characteristics of the deaf community, thus our observations that have been collected only from Attica region may be biased. A sample taken from the whole country, might offer a less biased investigation of the characteristics of the specific population and the exploration of several control factors.

Conclusions

This study provides evidence into an important area of hearing health inequalities which has gained recently a great interest in health services research [2]. Tackling inequalities in access to health services is among the rights of persons with disabilities, as clearly stated by the UN Convention on the Rights of People with Disabilities. Nevertheless, our results underscore the fact that deaf and hard of hearing persons constitute a minority population that experiences major barriers in access to health services and considerable difficulties in the healthcare doctor-patient relationship. In light of these findings, a special effort must be made to ensure that deaf and hard of hearing individuals receive adequate, appropriate and ethical health care.

Future research should focus on health communication between patients with hearing loss and health providers and interventions in cultural awareness trainings for health professionals. In addition, research should explore the development and implementation of Information and Communications Technology (ICT) applications, supported health communication that could contribute to improved health communication in Primary Healthcare settings and also as a solution for minimizing the multiple barriers for booking appointments. Furthermore, programs and interventions aiming to increase the health information knowledge in Deaf Communities could help in tackling these health inequalities, as the specific population faces many health literacy limitations.

References

- ¹ World Health Organization. (2015). Fact sheet. Deafness and hearing loss. Available at: <http://www.who.int/mediacentre/factsheets/fs300/en>.
- ² Tsimpida, D., Kaitelidou, D., & Galanis, P. (2018). Determinants of health-related quality of life (HRQoL) among deaf and hard of hearing adults in Greece: a cross-sectional study. *Archives of Public Health*, 76(1), 55. <https://doi.org/10.1186/s13690-018-0304-2>
- ³ Tsimpida, D., Kaitelidou, D., & Galanis, P. (2018). Barriers to the use of health services among deaf and hard of hearing adults in Greece: a Cross-Sectional Study. *European Journal for Person Centered Healthcare*, 6(4), 638-648. DOI: <http://dx.doi.org/10.5750/ejpch.v6i4.1566>
- ⁴ Kuenburg, A., Fellingner, P., & Fellingner, J. (2016). Health care access among deaf people. *The Journal of Deaf Studies and Deaf Education*, 21(1), 1-10. doi:10.1093/deafed/env042.
- ⁵ Hearing loss: an important global health concern. (2016). *Lancet* 387 (10036) 2351. doi: 10.1016/S0140-6736(16)30777-2.
- ⁶ Emond, A., Ridd, M., Sutherland, H., Allsop, L., Alexander, A., & Kyle, J. (2015). The current health of the signing Deaf community in the UK compared with the general population: a cross-sectional study. *BMJ open*, 5(1), e006668. doi:10.1136/bmjopen-2014-006668.
- ⁷ Steinberg, A. G., Barnett, S., Meador, H. E., Wiggins, E. A., & Zazove, P. (2006). Health care system accessibility. *Journal of general internal medicine*, 21(3), 260. DOI: [10.1111/j.1525-1497.2006.00340.1.x](https://doi.org/10.1111/j.1525-1497.2006.00340.1.x)
- ⁸ Meador, H. E., & Zazove, P. (2005). Health care interactions with deaf culture. *J Am Board Fam Pract*, 18(3), 218-222. doi:10.3122/jabfm.18.3.218.
- ⁹ Galanis, P., Sourtzi, P., Bellali, T., Theodorou, M., Karamitri, I., Siskou, O., ... & Kaitelidou, D. (2013). Public health services knowledge and utilization among immigrants in Greece: a cross-sectional study. *BMC health services research*, 13(1), 350. doi: 10.1186/1472-6963-13-350.
- ¹⁰ Kritzinger, J., Schneider, M., Swartz, L. & Braathen, S.H. (2014). "I just answer 'yes' to everything they say": access to health care for deaf people in Worcester, South Africa and the politics of exclusion. *Patient Education and Counseling* 94 (3) 379-383
- ¹¹ Zazove, P., Meador, H. E., Reed, B. D., Sen, A., & Gorenflo, D. W. (2009). Cancer prevention knowledge of people with profound hearing loss. *Journal of general internal medicine*, 24(3), 320. doi:10.1007/s11606-008-0895-3.
- ¹² Scheier, D. B. (2009). Barriers to health care for people with hearing loss: a review of the literature. *Journal of the New York State Nurses Association*, 40(1), 4.
- ¹³ McAleer, M. (2006). Communicating effectively with deaf patients. *Nursing standard*, 20(19). doi:10.7748/ns2006.01.20.19.51.c4044.
- ¹⁴ Sheppard, K., & Badger, T. (2010). The lived experience of depression among culturally Deaf adults. *Journal of psychiatric and mental health nursing*, 17(9), 783-789. doi:10.1111/j.1365-2850.2010.01606.x.
- ¹⁵ SignHealth. (2013) *Research into the health of deaf people*. <http://www.signhealth.org.uk/deaf-health-report-stage-one/>
- ¹⁶ Tannenbaum-Baruchi, C., Feder-Bubis, P., Adini-Weisel, B., & Aharonson-Daniel, L. (2014). How deaf people cope in routine and emergency situations-suggested paths for thought and action. *Harefuah*, 153(9), 532-6.
- ¹⁷ Alexander, A., Ladd, P., & Powell, S. (2012). Deafness might damage your health. *The Lancet*, 379(9820), 979-981. doi:10.1016/s0140-6736(11)61670-x.

-
- ¹⁸ Cardoso, A. H. A., Rodrigues, K. G., & Bachion, M. M. (2006). Perception of persons with severe or profound deafness about the communication process during health care. *Revista latino-americana de enfermagem*, *14*(4), 553-560. <http://dx.doi.org/10.1590/S0104-11692006000400013>
- ¹⁹ Iezzoni, L. I., O'Day, B. L., Killeen, M., & Harker, H. (2004). Communicating about health care: observations from persons who are deaf or hard of hearing. *Annals of Internal Medicine*, *140*(5), 356-362. doi:10.7326/0003-4819-140-5-200403020-00011.
- ²⁰ Lancet, T. (2012). The health of deaf people: communication breakdown. doi:10.1016/s0140-6736(12)60411-5.
- ²¹ SignHealth. (2014) *A Report Into The Health Of Deaf People (detailed version of Sick Of It, for professionals)*. <http://www.signhealth.org.uk/sick-of-it-report-professionals/>
- ²² Action on Hearing Loss (2012) *A report into the experiences of people with hearing loss when accessing healthcare* <http://www.actiononhearingloss.org.uk/accessallareas.aspx>
- ²³ Sheppard, K. (2014). Deaf adults and health care: Giving voice to their stories. *Journal of the American Association of Nurse Practitioners*, *26*(9), 504-510. doi: 10.1002/2327-6924.12087.
- ²⁴ Aharonson-Daniel, L., Tannenbaum-Baruchi, C., & Feder-Bubis, P. (2012). The health of deaf people. *The Lancet*, *379*(9833), 2238-2239. doi:10.1016/s0140-6736(12)60973-8.
- ²⁵ SignHealth. (2013) *Research into the health of deaf people*. <http://www.signhealth.org.uk/deaf-health-report-stage-one/> Accessed April 9, 2018
- ²⁶ Napier, J., & Kidd, M. R. (2013). English literacy as a barrier to health care information for deaf people who use Auslan. *Australian family physician*, *42*(12), 896.
- ²⁷ Ubido, J., Huntington, J., & Warburton, D. (2002). Inequalities in access to healthcare faced by women who are deaf. *Health & Social Care in the Community*, *10*(4), 247-253.
- ²⁸ MacKinney, T. G., Walters, D., Bird, G. L., & Nattinger, A. B. (1995). Improvements in preventive care and communication for deaf patients. *Journal of General Internal Medicine*, *10*(3), 133-137. doi:10.1007/bf02599667.
- ²⁹ Berman, B. A., Jo, A., Cumberland, W. G., Booth, H., Britt, J., Stern, C., ... & Bastani, R. (2013). Breast cancer knowledge and practices among D/deaf women. *Disability and health journal*, *6*(4), 303-316.
- ³⁰ Pollard Jr, R. Q., & Barnett, S. (2009). Health-related vocabulary knowledge among deaf adults. *Rehabilitation Psychology*, *54*(2), 182. doi:10.1037/a0015771.
- ³¹ McKee, M. M., Barnett, S. L., Block, R. C., & Pearson, T. A. (2011). Impact of communication on preventive services among deaf American Sign Language users. *American journal of preventive medicine*, *41*(1), 75-79. doi:10.1016/j.amepre.2011.03.004.
- ³² Reeves, D., Kokoruwe, B., Dobbins, J., Newton, V. (2004). Access to primary care and accident and emergency services for deaf people in the North West, Manchester. National Health Service Executive North West Research and Development Directorate.
- ³³ Tamaskar, P., Malia, T., Stern, C., Gorenflo, D., Meador, H., & Zazove, P. (2000). Preventive attitudes and beliefs of deaf and hard-of-hearing individuals. *Archives of family medicine*, *9*(6), 518. doi:10.1001/archfami.9.6.518.
- ³⁴ Orsi, J. M., Margellos-Anast, H., Perlman, T. S., Giloth, B. E., & Whitman, S. (2007). Cancer screening knowledge, attitudes, and behaviors among culturally Deaf adults: Implications for informed decision making. *Cancer Detection and Prevention*, *31*(6), 474-479.
- ³⁵ Margellos-Anast, H., Estarzi, M., & Kaufman, G. (2006). Cardiovascular disease knowledge among culturally Deaf patients in Chicago. *Preventive medicine*, *42*(3), 235-239. doi:10.1016/j.ypmed.2005.12.012.

-
- ³⁶ Woodcock, K., & Pole, J. D. (2007). Health profile of deaf Canadians: analysis of the Canada Community Health Survey. *Canadian Family Physician*, 53(12), 2140-2141.
- ³⁷ Kyle, J., Reilly, A. M., Allsop, L., Clark, M., & Dury, A. (2005). Investigation of access to public services in Scotland using British Sign Language. *Scottish Executive Social Research*. <http://www.scotland.gov.uk/Resource/Doc/930/0012107.pdf>
- ³⁸ Royal National Institute for the Deaf (Great Britain). (2004). *A simple cure: A national report into deaf and hard of hearing people's experiences of the National Health Service*. RNID.
- ³⁹ Smeijers, A. S., & Pfau, R. (2009). Towards a treatment for treatment: On communication between general practitioners and their deaf patients. *The Sign Language Translator and Interpreter*, 3.
- ⁴⁰ Middleton, A., Turner, G. H., Bitner-Glindzicz, M., Lewis, P., Richards, M., Clarke, A., & Stephens, D. (2010). Preferences for communication in clinic from deaf people: A cross-sectional study. *Journal of Evaluation in Clinical Practice*, 16(4), 811-817.
- ⁴¹ Chilton, E. E. (1995). Ensuring effective communication: the duty of health care providers to supply sign language interpreters for deaf patients. *Hastings LJ*, 47, 871.
- ⁴² Barnett, S., & Franks, P. (2002). Health care utilization and adults who are deaf: relationship with age at onset of deafness. *Health services research*, 37(1), 103. doi:10.1111/1475-6773.99106.
- ⁴³ Zazove, P., Meador, H. E., Reed, B. D., Sen, A., & Gorenflo, D. W. (2009). Cancer prevention knowledge of people with profound hearing loss. *Journal of general internal medicine*, 24(3), 320. doi:10.1007/s11606-008-0895-3.
- ⁴⁴ McAlinden, C. (2014). The importance of doctor–patient communication. *British Journal of Hospital Medicine*. 75(2):64-65. doi:10.12968/hmed.2014.75.2.64.