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Sign Language, the Key to Improve the Health Knowledge of Deaf People

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Methods: A qualitative study using conventional content analysis was conducted. Focus group discussion sessions were held with 14 individuals (8 were men) with different occupational positions such as linguists, interpreter advisor, legal experts and heads of Deaf institutes. The participants were selected using a purposeful sampling method. Five FGD sessions were held. Data analysis accomplished according to conventional content analysis.

Keywords: *qualitative study, health literacy, deaf population.*

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Sign Language, the Key to Improve the Health Knowledge of Deaf People

Mahsa Tahzibi [α], Abbas Rahimi Foroushani [σ], Kourosh Holakouie [ρ] & Saharnaz Nedjat [Ѡ]

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Results: The results were classified into three categories as: barriers ("limited communication with health care providers" and "limited access to health information sources"), facilities ("supportive laws" and "the activities of the supportive institutes for deaf people") and strategies ("Deaf-tailored health information" and "the usage of interpreter services") of Deaf people's health literacy promotion.

Conclusion: According to the existing supportive laws due to the right of using the sign language and the interpreters for equal access to health services, it can reduce the limitations of access to health information sources and communication with healthcare providers. It is highly recommended that professional interpreters should be used to facilitate communication.

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I. Introduction

Health literacy is "the degree to which individuals have capacity to obtain, process and understand basic health information and services needed to make appropriate health decisions" (1). In the 21st century, health literacy has been introduced as a global issue and as a hot topic in health. Limited health literacy is associated with poor health outcomes, lack of utilization of health services and inequities in health provision (2, 3).

The results from a study in the U.S, from 2009 to 2016, have shown that the level of health literacy in Deaf is lower than non-Deaf people (4-6). Deaf people are a linguistic, social, and cultural minority in the society in which their common feature is use of sign language, Deaf culture, and its values. Language and communication barriers, lack of information sources in sign language, and videos with subtitles have deprived Deaf people of access to health and healthcare messages in mass media (5, 7-9). The lack of a validated and reliable health literacy measure in sign language prevents a reliable evaluation of health literacy among Deaf (4, 5, 10).

The studies on Deaf health have shown that many of these people are at higher risk for health problems due to lack of health literacy despite their higher education (11). The lack of awareness of the healthcare providers about effective communication methods and the ways of message transmission to the Deaf are one of the obstacles to promote health literacy (12). Kritzinger's study on the barriers and facilities of South African Deaf health literacy assessed communication, structural and environmental barriers (13). Based on this study, Access to health information is possible through omitting communication barriers, accessible health education opportunities and aware hearing people about Deaf communication skills. Due to the linguistic difference and communication method, providing accessible information for them calls for the implementation of other strategies including use of sign language interpreters, use of subtitles and written forms in some cases.

According to examinations of Iranian databases, no studies have been carried out to assess barriers, facilities and strategies of health literacy among the Iranian Deaf population. A review study by Naseribooriabad et al. examined 73 quantitative and qualitative studies on health literacy of Deaf people in different countries. Based on the results of this study facilities themes are the right of access to health services, training health professionals in relation to effective communication methods with deaf patients, providing sign language interpreting services, and designing Deaf-tailored health educational programs (10).

Deep and exact examination of deaf people and relevant policy maker's point of views in relation to explanation of factors related to health literacy promotion among Iranian deaf people in the context of Deaf and Iranian culture using Iranian sign language seems to be necessary. The findings of this study and the suggested strategies could help policy makers and

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planning authorities to enhance the health literacy level of Deaf people.

II. Methods

The present qualitative study was a part of a larger study examining the status of health literacy among Deaf populations with a quantitative and qualitative methodology. This qualitative study was conducted using a conventional content analysis method.

a) *Participants and Sampling*

In this study, the individuals were selected using a purposive sampling method among different groups of Deaf people, including heads of Deaf institutions, and key people such as linguists, interpreter advisors and legal experts on disability issues from all over the country of Iran. All the participants were Deaf, and were in close touch with other Deaf people so they had adequate and complete knowledge of Deaf people's challenges.

b) *Data Collection and Interviews Content*

Data were collected through focused group discussion sessions. First, a meeting was held at the National Deaf Congress with participation of heads of the Deaf institutes. The importance of health literacy of Deaf society and the necessity of conducting a qualitative study to understand and identify the barriers, facilities and solutions, were stated. Time and the place of the interview sessions were selected which was a calm, convenient environment for the ease of the participants.

The interview sessions lasted roughly from 45 minutes to 1 hour and were camera recorded with the prior permission. Five FGD sessions were held.

The main questions of the interviews were the barriers and challenges in Deaf health literacy promotion, the barriers of access to health information sources for deaf people, the opportunities and solutions for health literacy promotion of Deaf people.

Questions were asked with sign language by one of the authors. An interpreter was present at the meeting to write down important points. In case of any deviation from the main topic, the researcher got the attention of deaf participants by tapping on the table and guided the discussion again.

c) *The Study Credibility*

In order to improve the validity and reliability of qualitative studies, the trust building strategy with the participants (due to the work experience of one of the authors as a sign language interpreter) and member check technique (checking with the interviewees) were used. The modifications and suggestions were added.

d) *Analysis*

The data were analyzed using conventional content analysis. Themes and final categories were extracted after writing down the interviews and double checking of the notes and also, checking with six participants.

e) *Ethical Considerations*

After obtaining an ethical academic confirmation from Tehran University of Medical Sciences, (IR.TUMS.VCR.REC.1397.364), by explaining the purpose of the study, written informed consent was obtained from all the participants for participation and recording the sessions. They were also ensured that the videos will remain confidential and that the information obtained will be used only for the purposes of this study. They were also assured that at each stage of the research, they can refuse to participate in the research and their information would be kept confidential during and after the research.

III. Results

Fourteen people participated in this study. Totally 3 categories (barriers, facilities and solutions), 6 sub-categories (limitation of communication, access to information, supportive laws, Deaf centers, and accessible resources and the use of interpreter services) and 11 themes are summarized in Table 1.

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Table 1: Categories, Sub-Categories and the Themes of Identifying Barriers, Facilities and Strategies for Improving the Literacy of the Deaf in Tehran

Category	Sub-Category	Themes
Barriers	1-1 Limitation of communication with health providers	1-1-1 Lack of Iranian sign language interpreter
	1-2 Limitation of Access to Health Information Resources	2-1-1 lack of access to health information using sign language and/or subtitle 2-1-2 limitation of health education by family 2-1-3 limitation of health education by school
Facilities	2-1 The existence of supportive laws	2-1-1 The right to use the sign language and interpreter 2-1.2- The right to achieve personal health
	2-2 Activities of Deaf centers	
Solutions	3.1 Accessible information resources	3-1-1 Providing information on health through video in social media 3-1-2 Designing and developing special educational materials for Deaf population 3-1-3 specialized workshops in cooperation with health experts in Deaf centers
	2-3 Using interpreter services	3-2-1- Using sign language interpreter in national TV for health programs 3-2-2 Interpreter dispatch system in health centers

a) *Barriers*

The barriers category comprised of two sub-categories entitled *"limitation of communication with health providers"* and *"limitation of access to health information resources"*.

i. *The sub category of communication with health providers has 1 theme which is Iranian sign-language interpreter*

a. *Sign language interpreter*

The participants argued that the interpreter plays an important role in Deaf life. The right to have an interpreter is a primary right for the Deaf. The communication of the Deaf with others is possible in a variety of ways, such as lip reading and writing. When a deaf person goes to the health centers, in the absence of an interpreter, a superficial relationship is established with the health staff. Failure to receive information from health care providers due to communication restrictions is one of the barriers to health literacy promotion. One participant commented that:

"I hate being in this position. I have often seen that they do not even understand what it means to be Deaf: trying to talk with a mask on her mouth. Sometimes I saw that the care team tried to contact us using pantomime (dumb show) with laughter and a grin ..."

"An interpreter must be present for translating these two languages to provide full information for Deaf patients either at the time of receiving medical services or receiving health education..."

The interviewees stated that in many developed countries, the government provides facilities for Deaf people to live like other citizens with equal opportunities. The establishment of an interpreter system and its costs in hospitals is one of the government's actions for Deaf community In Iran, only Razavi Khorasan province has launched an interpretation system for providing services to Deaf community. The interviewees stated that:

"The Welfare Organization (The Trustee Affairs of Deaf in Iran) should plan to train interpreters and provide interpreters services. Construct a framework in which the interpreters do it properly."

"It is not good (correct) to take my ten-year-old daughter to interpret health materials. Instead, I have to train her. I use my sister as an interpreter, but it is not her specialty and she may not understand and interpret correctly. If an interpreter is a lawyer, he can interpret the content for me in a court much better, this is very important..."

According to a sign language interpretation expert, academic training of professional interpreters is a major need in today's Deaf society of Iran. In the field of interpretation, it is very important for an interpreter to be skilled in the subject they interpret.

"Iran is not a member of the World Association of Interpreters, so it does not follow the principles and rules of the training of interpreters. Nowadays in Iran, besides the problem of the number of interpreters, lack of professional interpreters has posed challenges to Deaf community, not adhering to the principles of professional interpretation and ethical principles by Iranian interpreters have displeased Deaf with the interpretation service ..."

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ii. *The sub-category of information access limitation has 3 themes: restrictions on access to information using sign language and subtitles, restrictions on access to information through family and school.*

Limitation of access to information using sign language and subtitles.

For Deaf people participating in this study, sign language is an independent language with its unique vocabulary, terminology and grammar. In this language, the movements of facial components (eyes, eyebrows, and lips) form the grammar part of the sign language. People who use sign language are facing different problems in a variety of areas, especially in health. Because of linguistic constraints, they cannot receive health information available in the society.

"Medical indication and the health education concepts should be explained using our original language, sign language, to be fully understood and to prevent overwhelming and misunderstandings in Deaf ..."

"My first language is the sign language. Persian language is the second language, but why should I have so many barriers to obtaining the information because of this? They always think that the sign language is the pantomime of the Persian words, but it is not. That is why they expect us to fully understand the written version of the Farsi language or Persian lip reading…"

Interviewees believed that information sources, such as TV, radio, internet, newspapers, books, educational brochures, schools, families, friends and health professionals are mainly providing information in Persian language. Written form resources such as newspapers, magazines, books, and booklets are not suitable for deaf people due to language differences.

"*They tell me aren't you literate, so read this writings, I am literate and can read, but it is Persian, I cannot understand it very well, although it is very strange for them. They thought writing was the best way to transfer health education for me, but writing is not always appropriate for all Deaf..."*

iii. *Limitation on access to information through the family*

According to some of the participants, there is no education and information about deafness and sign language given to the hearing parents of the deaf children in Iran. Thus, the majority of hearing parents do not learn the sign language, so they do not get into deep relationships with their deaf children, and their relationship is limited to the initial level of dialogue. In case of health education, deaf people rely on the information their parents provide which is also depends on the understanding of parent knowledge of sign language. However, most interviewees believe that the family does not have a good performance as a source.

"I always see my mother watching health programs on TV. There are some health experts that are explaining a variety of topics related to health. I ask my mother every time "what the doctor says" and she only explains it to me in a minute. But I am sure the doctor has made a long and accurate speech ..."

iv. *Limitation on access to information through the Deaf school*

According to the participants, deaf school is the first and most important social gathering for the deaf children. Particularly if their parents are hearing, seeing other deaf children expands their communication and their sign language improves in the school. If their teacher is fluent in sign language, he/she will be the first one to establish a deep relationship with the student and provide a source of information for them. However, there were controversies about health education in schools in the interviewees.

"*The school or teacher is by no means proper to teach health or well-being, because the teacher's duty is teaching the lessons according to curriculum. It is the duty of the family and the community to be involved with health and inform the Deaf child ..."*

"In my opinion, in this case, the family should withdraw and through the health centers, Deaf centers and school) health issues should be taught to children. In other words, these materials should be taught in sign language. In Deaf centers, the training should be done with the presence of health specialists…"

b) Facilities

The facility category consists of two sub-categories entitled: *"Presence of supportive laws rules"* and "*activities of Deaf centers*".

i. *The sub-category of supportive laws rules has 2 themes as "the right to use the sign language and interpreter", and "the existence of a supportive law to benefit from personal health and hygiene".*

According to the participants, Iran is committed to implement the provisions on the rights of people with disabilities, as written in the United Nations documents. The convention has 30 articles, that in some cases, specifically it refers to Deaf. For example, article 2 considers the sign language as an official language of deaf people. Article 9 stipulates the right of access to information and communication using sign language for Deaf in relation to the right of access for persons with disabilities. According to article 17, any person with a disability has the right to be respected for physical and mental health on an equal basis with others. In addition, article 25 states that the member states should recognize the rights of persons with disabilities to reach

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the highest standards of health without discrimination on the basis of disability. A legal expert also stated:

> "*Iran is one of the countries ratifying the convention in the legislature and is required to implement it. According to article 9 of the Civil Code, the non-implementation of the convention on the rights of persons with disabilities is a violation of the domestic law. The other point is the convention protocol, which, if the government joins it and violating the rights of citizens with disabilities, after internal procedures, allows citizens to sue their government in the committee, but Iran is not a member of this protocol...*"

ii. *Activities of Deaf Supports Centers*

According to the heads of Deaf centers, the other opportunity is presence of active Deaf-oriented centers in major cities of Iran. These institutions exist as a community, family association and religious delegation responsible for the legal and social follow-up of deaf people's rights. It is possible to use the potential and actual facilities and advantages of this institution at the Welfare Organization to provide the necessary education and health information to deaf population.

c) Solutions

The category of solutions has two sub-categories entitled "*property health information resources*" and "*the use of interpreter services*".

i. *The sub-category of appropriating health information sources has three themes "providing health information through videos in social media,", "designing and developing special educational materials for Deaf." and "specialized workshops in cooperation with health experts in Deaf centers."*

a. *Teaching health content and providing information by sharing their videos (with sign language) in social media*

According to the participants, nowadays communication is getting comfortable for deaf people due to advances in technology. Posting videos that contain personal, educational, and cultural conversations in cyberspace with high quality attracts the attention of deaf and has many proponents. Most of the content providers are deaf and by providing educational videos using sign language try to increase general information among deaf people. However, there are still some limitations: 1) lack of access for all deaf people to information, especially deaf people with low literacy, with no access to smartphones or the internet, and those deaf people who do not know sign language, 2) lack of opportunity to pose questions and answers to resolve problems and misunderstandings, 3) the lack of active mechanism of deaf people in this regard, and 4) lack of face-to-face training.

b. *Designing and developing educational materials for Deaf with sign language*

The participants believed that it is necessary to design a protocol to health education and information based on the educational needs of Deaf, while addressing the challenges of learning and receiving health-related information among Deaf. The format of these educational materials must be linguistically accessible and culturally localized (naturalized) and relevant. It also must contain updated and useful information for Deaf. Reducing and preventing health inequalities in deaf population is highly dependent on the design and development of health education materials tailored to the needs of Deaf.

c. *Holding training courses or specialized workshops with sign language on health education and prevention in Deaf centers with cooperation of health experts and interpreters*

According to the heads of Deaf centers, holding specialized training workshops have tremendous effect on enhancement of life quality among Deaf. In-person tutoring will have the best effect on Deaf as the opportunity is given to questions and answers and thus prevent any misunderstandings. Discussions and interaction between deaf people in health issues increase the motivation and interest of Deaf to learn about health issues. Regarding this, the head of the Deaf Association of Sistan and Balouchestan said:

> *"As the deaf health information is almost nothing and a lot of information is new to them, it is necessary for the education to be deep and basic with sign language. It is better to hold these classes with specialists and interpreters in the center."*

ii. *The sub-category of using the interpreter's services has two themes: using the interpreter in the health program of national media and setting up an interpreter system in health centers*

a. *Using the sign language interpreter for the broadcasting health programs in corporation with national media*

According to the participants in the study, the Health Channel (one of the Iranian National TV channels) is one of the important ways of national media trying to enhance the health literacy of the society. Recommendations should be conveyed to the Welfare Organization and the National Broadcasting Corporation, that considering the importance of this issue and with reference to the national law on the protection of access to health, the Health Channel use the sign language interpreter to improve the health literacy level of Deaf.

b. *Interpreter dispatch system in health centers*

According to the heads of Deaf centers, there should be cooperation with the Welfare Organization

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and health centers through the Deaf institutions to enable these people to get health services when he/she is in need. Furthermore, the hospitals have to be aware of the existence of this system to get an interpreter in emergencies.

IV. Discussion

This study aimed to examine the barriers, facilities and strategies to improve the health literacy level in Deaf society according to the heads of Deaf institutions and key people in the legal, linguistic and interpreting areas (who all were Deaf). Overall, the results consisted of three categories of barriers, facilities and strategies of health promotion of Deaf.

All the interviewees pointed out the importance of transferring messages with sign language and the presence of the interpreter in the health system to enhance the communication between deaf people and the healthcare providers and believed that physicians have no proper understanding of deaf people and methods to communicate with them. The lack of an interpreter to interact with the healthcare provider leads to disappointment of the health system as well. Furthermore, Barnett et al. reported challenges in communication between deaf patients and physicians, who reported an uncomfortable feeling with the patients (12). Lotke. M has stated the best way to communicate with deaf people by far is to communicate through a skilled and fluent interpreter (14). A very significant interpretation principle is having mastery in that specific subject (15).

Although numerous studies have showed the role of the interpreter in improving the life quality of deaf and the necessity of using the interpreter based on supportive law (19-16), this study showed that communication facilities were not available to healthcare providers and deaf patients.

One of the facilities of health literacy promotion for Deaf is the existence of supportive laws for using sign language and interpreter services, which states that deaf person has the right to equal access to the health care system through effective communication methods by providing sign language (20, 21). The limitation of access to health information sources was one of the barriers mentioned in this study. Similar to the results of other studies (15), this study showed that deaf people have limited access to appropriate health information in mass media such as newspapers, television and the Internet. As it has been showed in other studies and also our study, the most effective way of transferring health knowledge is the sign language, informative photos and short films with simple subtitles (7, 9, 23, 24 and 25).

In this study the interviewees stressed out the significance of transferring health information with sign language. The study of McKee in US showed that the more information given in sign language, the better knowledge and performance will obtain among deaf people and linguistic barriers and lack of access to mass media and health information among deaf people lead to a low level of illiteracy(4). In a blinded trial study, on 130 deaf women, it was shown that educating health issues through video and conversation and deep discussion in groups has a significantly better (26).

In a study, it was shown that other methods, like the SMS method was also highly effective in promotion the level of knowledge of Deaf. Also having a picture in the message, a signed message, and an association link with the campaign for interactive communication services to clarify any ambiguity and question in deaf were other effective options in this method (27). Other technology-based methods also are increasingly arising and found to be effective and very also cost/time saving. These methods have been studied in recent literature, such as using a web site specially designed for these population (28). Telemedicine also can provide a wide access for deaf using technology to overcome communication barrier through sign language expert (1)(22).

In contrast with the available literature, the results of this study showed that all sources of health information in Iran are inaccessible for deaf people, as these sources are available either verbally or in written forms for public. The studies by McKee in US and Napier in Australia showed that the language and communication barriers have deprived Deaf community and kept them away from health education and development plans and messages from health care providers in the mass media (9, 29).

This study showed that in many cases families and even deaf people themselves have not learned the sign language. The results from other studies showed that learning sign language in children during the golden age of 0 to 4 years can lead to cognitive development of the child (30). As Kushlangar's study on deaf students shows, the age of learning sign language has a great effect on crucial health literacy, whereas the age of learning English could not predict it (31). Earlier studies show functional literacy and health knowledge were significantly higher in families who interact with the sign language (32-34).

Our results indicated that in Deaf schools, the health contents are not provided due to lack of fluent health teacher, as the limited number of deaf students and lack of time to provide these materials due to the curriculum for main lessons.

Some interviewees have considered schools as the best places to learn health information. Recent studies have stated that the Deaf schools are a suitable place for implementing health promotion programs, because these schools provide the richest form of relationships with the use of sign language and it has an

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appropriate environment socially and psychologically (7, 35, 36).

One of the most important strengths of this study was addressing barriers, opportunities and strategies of promotion health literacy level according to the experts, head of Deaf centers and lay experts (deaf people) points of view. Further the study of their experiences in the context of the discussion elaborated on the results of this study, however in the qualitative approach and purposive sampling, it is limitedly possible to generalize the results of the study.

v. Conclusion

The results of this study showed that the main key of health literacy level promotion is the use of sign language and subtitles for educational videos for people who are deaf and hearing impairment. The findings of this study can be used to design effective interventions. According to the existing supportive laws due to the right of using the sign language and the interpreters for equal access to health services, it can reduce the limitations of access to health information sources and communication with healthcare providers. It is highly recommended that professional interpreters should be used to facilitate communication.

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