

# An elective program in medical education: Communication with Hard of Hearing People and Turkish Sign Language

Tıp eğitiminde bir seçmeli program: İşitme Engelli Bireylerle İletişim ve Türk İşaret Dili

Özlem MIDİK, Figen BASAR, Mehmet EMİRZEOĞLU, Gamze ALAYLI, Gokhan SARISOY, Emre GUNBEY, Murat YUCE, Erdal AGAR

## ABSTRACT

**Objective:** The aim of this study is to present the outcome of the Communication with Hard of Hearing People and Turkish Sign Language elective program which is implemented for medical students.

**Materials and Methods:** Feedback from the students was collected using a questionnaire of 21 statements under 10 headings. Student success was evaluated by theoretical and skill examination results and program success was evaluated by portfolio essays. In the data analysis, descriptive qualitative and quantitative analysis was used.

**Results:** The mean overall score given to the program by the students was 8.53±0.88 out of 10. The students expressed

the contribution levels of the block to the competence areas of professionalism as 8.45±1.64, to medical knowledge and understanding as 7.72±1.66, to clinical skills as 7.92±1.99 and to high-level skills as 8.09±1.52. The average of the block assessment scores of the students was 88.39±0.76 at the end of the block. The most significant output of the program was learning Turkish Sign Language.

**Conclusion:** The findings of this study show that the effect of the program on learning was highly positive and student feedback was encouraging for continuity of the program.

**Keywords:** Educational program development, Medical education, Communication, Turkish Sign Language, Deaf/hard of hearing people

Ozlem Midik (✉)

Department of Medical Education, School of Medicine, Ondokuz Mayıs University, Samsun, Turkey

e-mail: dromidik@gmail.com

Figen Basar

Sub-department of Audiology, Department of Otorhinolaryngology, School of Medicine, Ondokuz Mayıs University, Samsun, Turkey

Mehmet Emirzeoglu

Department of Anatomy, School of Medicine, Ondokuz Mayıs University, Samsun, Turkey

Gamze Alayli

Department of Physical Therapy and Rehabilitation, School of Medicine, Ondokuz Mayıs University, Samsun, Turkey

Gokhan Sarisoy, Murat Yuce

Department of Psychiatry, School of Medicine, Ondokuz Mayıs University, Samsun, Turkey

Emre Gunbey

Department of Otorhinolaryngology, School of Medicine, Ondokuz Mayıs University, Samsun, Turkey

Erdal Agar

Department of Physiology, School of Medicine, Ondokuz Mayıs University, Samsun, Turkey

Submitted/Gönderilme: 08.10.2015

Accepted/Kabul: 07.12.2015

## ÖZ

**Amaç:** Bu çalışmanın amacı, tıp öğrencileri için uygulanan İşitme Engelli Bireylerle İletişim ve Türk İşaret Dili seçmeli program çıktılarını paylaşmaktır.

**Gereç ve Yöntem:** Öğrenci geribildirimleri 10 başlık altında 21 önermeden oluşan bir anket kullanılarak toplandı. Öğrenci başarısı, teorik ve beceri sınav sonuçlarıyla, program başarısı ise portfolyo yazılarıyla değerlendirildi. Veri analizinde niceliksel ve niteliksel betimleyici analiz kullanıldı.

**Bulgular:** Öğrencilerin programa genel olarak verdikleri puanların ortalaması 10 üzerinden 8,53±0,88'dir. Öğrenciler bloğun yetkinlik alanı olarak profesyonelliğe katkısını 8,45±1,64, tıbbi bilgi ve anlayışa katkısını 7,72±1,66, klinik becerilere katkısını 7,92±1,99 ile üst düzey becerilere katkısını 8,09±1,52 olarak ifade ettiler. Öğrencilerin blok sonunda sınav sonuç ortalamaları 88,39±0,76'dır. Programın en önemli çıktısı Türk İşaret Dili'ni öğrenmek oldu.

**Sonuç:** Bulgularımız, programın öğrenme üzerine olumlu etkisi olduğunu göstermekte ve öğrenci geri bildirimleri programın sürekliliğini gerekli kılmaktadır.

**Anahtar kelimeler:** Eğitim programı geliştirme, Tıp eğitimi, İletişim, Türk İşaret Dili, İşitmeyen bireyler

## Introduction

Disability is a general term used for a functional limitation that interferes with a person's ability. It may refer to a physical, sensory or mental condition. Approximately one billion individuals worldwide are known to have some form of disability [1-4].

The data pertaining to the hearing-impaired persons are not accurate and the latest data of the World Health Organization from 2011-2012 estimates 275–360 million people to be hearing impaired [1-4]. Hearing impaired or hearing loss are generic terms used by some individuals to indicate any degree of hearing loss from mild to profound. Hearing loss refers to hearing greater than 25 dB in the better ear in adults and greater than 15 dB in the better ear in children [4, 5]. The majority of these people live in low and middle income countries [5]. There may be currently more than 700 million people with hearing loss worldwide and by 2025, it is estimated that 900 million people throughout the world will be hearing impaired with approximately 90 million of these being from Europe [6].

The data obtained from studies in Turkey related to hearing impairments are not clear [7-9]. At the planning stage of these studies, 'disability' was not defined and as the data were gathered orally rather than recorded on a form, there are inconsistencies [10]. Although this cannot be said to be reliable, the Turkish National Statistical Institution, in 2011 reported that 820,000 individuals had hearing difficulties [7]. The disabled in general, and the hearing impaired in particular still face discrimination at the level of accessibility and participation in working life, quality of life, educational opportunities and healthcare and this is valid in Turkey today [4,9].

It is known that hearing impaired individuals have lower levels of access to health care than other people. Communication problems have been put forward as the most significant reason for this problem. Not knowing about the culture of deaf/hard of hearing persons or strategies for communication with them, avoiding eye contact and lack of listening are denoted as barriers in communication [11, 12]. Deaf/ hard of hearing individuals worry about receiving a misdiagnosis and mistreatment during the process of health care [12, 13], also they state that physicians avoid talking to them, they do not show them respect, and they prescribe drugs without any patient interviews. Physicians, on the other hand, state that working with deaf/hard of hearing patients is difficult and this results from their own lack of education [11-13]. These individuals use various communication

methods, of which few health workers are aware. Based on this, while new tasks and obligations have been defined for health institutions, educational requirements have been established for healthcare staff [14, 15]. However, language training alone is not sufficient for physicians and medical students. Physicians and medical students must act in awareness of this subject with knowledge of deaf culture, means of communication with these patients and interview methods and should be able to identify the basic features of sign language as a method of communication [14,15].

In 1995, the Ministry of National Education published a guidebook (Guidebook of Turkish Sign Language (TSL) for adults) including a list of 2,000 signs. The main purpose of the guide was to provide a source for deaf adults to use a unified sign language throughout the country [16, 17].

The function of working about TSL was given to a commission embodied in the Turkish Language Institution (the code no: 2547/2005) [16]. In December 2012, The TSL Dictionary of 1872 words was published on the Turkish Language Institution website [18]. In 2013, the Council for Higher Education passed the decision that TSL should be offered as an elective course in all Higher Education programs [19].

Certain stages are observed in the development of an educational program. These stages in chronological order include defining the needs assessment, defining aims and objectives, defining the training methods, implementing the program and finally defining an evaluation system for the students and the program [20]. The above-mentioned requirements enabled the design of an educational program for medical faculty students.

The aim of this study was to present the outcomes of the Communication with Hard of Hearing People and Turkish Sign Language (CoHHP and TSL) elective program which is implemented for medical students, in the formal medical curriculum.

## Material and Methods

This study is a program evaluation study, measuring the student reaction with the CoHHP&TSL elective program, the reactions and success (learning) of the students and the outcomes of the program. Reaction evaluation includes assessment of the training participants' opinions concerning the training program, in terms of how well participants liked a particular program. Learning evaluation measures quantifiable indicators of the learning that has taken place during the course of the training [21].

In this one-shot case pre experimental study design, an intervention is implemented, following which an observation is conducted [22].

The development process of the program is firstly explained, and then data analysis is made from the data gathered and used in the program evaluation. The study protocol was accepted by the Medical Research Ethics Committee of the Ondokuz Mayıs University; decision number 2014/589.

### **Program Development Process**

Modern medical education should include elective courses besides the core program. Elective courses give students the freedom to choose areas of interest. Good elective course designs are dependent on resources, the features of the educators and learners, and the learning and teaching approaches. These designs support professional and institutional requirements and meet the real needs of students [23].

Ondokuz Mayıs University, School of Medicine has a spiral curriculum, which includes student-centered, problem-based and community-based approaches and also 3-5 week block period elective programs [24]. The CoHHP&TSL is an elective program that students can take in the second year. The program is managed by a committee consisting of educators from the disciplines of Anatomy, Physiology, Psychiatry, Otorhinolaryngology, Audiology and Medical Education and also includes an Audiology specialist with a TSL certificate.

### **1- Program Goals**

At the end of the program, the medical students should meet the following requirements;

- explain how hearing takes place and under what conditions deafness/hard of hearing occurs
- gain awareness of audiological evaluation and screening programme
- develop the skills of communication / interview between doctor and deaf/hard of hearing-patients
- gain awareness of the culture of deaf/hard of hearing persons
- establish communication using TSL

### **2- Education Methods**

\*Large group sessions; 2 panel discussions and 6 lectures.

\*Sessions of sharing experience; including recognizing the cultures of different disabilities, being aware of what they experience while they receive healthcare, and developing a

sense of empathy towards the handicapped individuals and their relatives.

\*Sign language training program; sign language is not universal, but has specific cultural connections with slang and widespread or elite forms of use with regional differences as a national spoken language with accents [25].

The content of this training schedule was dependent on the National Ministry of Education of the Turkish Republic. Sign language education is in the form of 120 hours of basic skills. The program includes the basic features of TSL and the ability to differentiate the context, syntax and grammar features of basic signs. In the program, 3 instructors took a group of 20 students each.

Modules of TSL training:

Sign language and environment (introducing self, family members, age etc.)

School and educational signs

Food and clothing signs

TSL grammar concepts (presence/absence, types, nouns, simple verb conjugations, numbers, questions, adjectives, adverbs)

Emotions and goods

Traffic and organisms

Professions

Time / Calendar

Dialogue (fluent TSL speech using conjunctions, positive-negative, forming questions, present, future and past tenses)

Concepts related to health, medical diagnosis, disease, treatment

Patient-physician interview

\*Socratic discussion sessions: Students are divided into four groups and discuss the problems below:

Can or should any of the following be a physician or not?

1. Hearing-impaired
2. Visually-impaired
3. Physically handicapped
4. Schizophrenic person

Four students from each group were determined as the speakers in the discussions, which was conducted over four sessions, so that both sides of the arguments were presented. This method is important in improving the skill of listening to contrasting ideas, being open to different views, defending what you believe in and persuasion.

\*Observational participation; Deaf society, a deaf/ hard of hearing high and primary school were visited.

\*Social and art activities; the movie 'Black' was watched, followed by a discussion. A psychodrama practice was used to emphasize "empathy". At the end of the program, a demonstration was planned as an educational activity in which the students would display what they acquired during the program. The students shared the learning process and outcomes with their peers, educators and faculty members.

### 3- Student Assessment Methods

\*Theoretical examination related with the goals of the presentation and panel activities. The rate of this examination to the end of block grade was 30%.

\*Competency based skill examination conducted by TSL instructors using a check-list (as mid-term and final exam) and was rated as 50% of the end of block grade. The exam was conducted at four levels, 1- telling one's résumé, 2- conveying a set of given words in Turkish, 3- translating Turkish word to TSL, and 4- translate a given paragraph to TSL. In this examination, the evaluation criteria included fluency of sign language speech and facial expressions when using the language.

\*Portfolio is the personal progress file documenting student activities throughout the program. It consists of five tasks, which contribute to the end of block grade by 20%. Portfolio was read by the committee and evaluated according to a scale of criteria.

Portfolio tasks were:

- 1- What kind of health service should be offered to individuals with different disabilities?
- 2- Give feedback about the psychodrama practice, the sharing experience, and the film sessions
- 3- Write a report stating what you experienced and observed during your visits.
- 4- Write a report summarizing the process of Socratic discussion and its result.
- 5- Produce a poster or video encompassing one of the objectives of the program.

### 4- Program Evaluation Methods

End of block evaluation forms which measure student satisfaction consist of 21 statements under the headings of sharing, aims, education activities, examinations, resources, educators, settings, education management, educative values, independent learning and overall evaluation. The

students were asked to mark these statements according to a scale of 0 (strongly disagree) - 5 (strongly agree). In an additional section, the contribution of the block to competence (medical professionalism, medical knowledge and understanding, clinical skills and high-level skills) is questioned and scored out of 10 for the whole block.

The student portfolios were a rich data source for this study. There are open-ended sections in the portfolios where students express their evaluation. The essays, film clips or photographs produced by the students are also included in the portfolios and were used as data sources. The other data source was the examination results as these are related to the success of the students in the evaluation of the program.

### Data Analysis

Quantitative data was analyzed using the Statistical Package for the Social Sciences v.15. Median and standard deviation were calculated for the measured variables, while numbers and percentages were stated for nominal variables. Qualitative data was resolved by descriptive analysis.

### Results

The students reported that the elective program was useful and important and they added that all students should participate in this block. The overall mean score that students gave to the program was  $8.53 \pm 0.88$  out of 10.

The highest scores were awarded to the knowledge and skill of the educators (The educators who were in charge in this block were competent in their areas in terms of knowledge and skills) and the lowest to sharing the program information (Table I). The students stated that the education methods used were beneficial and educational, and the educators were caring.

The written statements of the students were seen to be generally on four themes as follows:

Theme 1- Learning sign language as an important outcome;

*It was full of teaching points that we will be able to use throughout our career, which was the most crucial difference distinguishing this elective from others.*

*I observed that there was a frequent repetition of what was learned in the lessons. Through this reinforcement, what had been learned was not forgotten.*

*The end of block demonstration was quite successful and nice. It encouraged our friends who did not participate in the block to attend activities related to the handicapped.*

**Table 1.** Students' opinions of the program propositions

		Number (%)						Median (SD)
		1	2	3	4	5	Total	
SHARING	I knew what I had to learn in this block.		1(1.7)	4(6.7)	32(53.3)	22(36.7)	59 (98.3)	3.00(0.66)
	All the necessary information as to the program was published in a website in time and in an understandable way	2(3.3)	15 (25.0)	16(26.7)	16 (26.7)	10( 16.7)	59 (98.3)	2.00(1.13)
OBJECTIVES	The objectives in the block were determined in a realistic, attainable and interrelated manner.		1(1.7)	4(6.7)	33(55.0)	20 (33.3)	58( 96.7)	3.00(0.66)
	The block content was organized and presented in a logical order and in such a way that would contribute to learning.		1(1.7)	9(15.0)	31(51.7)	17(28.3)	58( 96.7)	3.00 (0.72)
	The block content was structured in a way that would bring knowledge, skills and attitude necessary for my profession.			2(3.3)	34(56.7)	22(36.7)	58( 96.7)	3.00( 0.55)
ACTIVITIES	The association of educational activities in the block (PBL, lab, presentation, skills training, etc.) enabled me to reach my learning objectives.	1(1.7)	2 (3.3)	8 (13.3)	27 (45.0)	20(33.3)	58( 96.7)	3.00(0.88)
	Adequate opportunities were provided throughout the block for questions or discussions. It was structured in a way that would encourage me to be an active learner.		1 (1.7)	3(5.0)	27 (45.0)	27(45.0)	58( 96.7)	3.00(0.67)
ASSESSMENT	Exam questions in this block tested the block objectives.	1 (1.7)	3 (5.0)	11(8.3)	30(50.0)	12(20.0)	57(95.0)	3.00(0.87)
	The assessment criteria were open and appropriate.		3 (5.0)	7(11.7)	30(50.0)	17(28.3)	57(95.0)	3.00(0.80)
MATERIALS	The learning materials recommended in this block (course books, electronic resources, presentation slides, video recordings, lecture notes, etc.) were appropriate for the objectives, useful and sufficient.	1 (1.7)	2 (3.3)	5(8.3)	33 (55.0)	16(26.7)	57(95.0)	3.00(0.82)
EDUCATOR	The educators who were in charge in this block were competent in their areas in terms of knowledge and skills.		1(1.7)	3(5.0)	22(36.7)	31(51.7)	57(95.0)	4.00 (0.68)
	The educators who were in charge in this block were competent in terms of learning-teaching skills.			3(5.0)	26(43.3)	28(46.7)	57(95.0)	3.00(0.59)
	The educators who were in charge in this block had high level skills (reasoning, critical thinking, decision making, cognitive skills and reflective thoughts, etc.).	1(1.7)	1(1.7)	5(8.3)	26(43.3)	24(40.0)	57(95.0)	3.00(0.83)
	The educators who were in charge in this block had a professional attitude towards the students.		3(5.0)	4(6.7)	24(40.0)	26(43.3)	57(95.0)	3.00(0.82)
ENVIRONMENT	Learning environments (Learning Resources Center, library, study areas, computer labs, etc.) were sufficient in quality and quantity.		6(10.0)	13(21.7)	27(45.0)	11(8.3)	57(95.0)	3.00(0.89)
	The behavior and communication level of the staff working in learning environments supported learning.		1(1.7)	4(6.7)	32(53.3)	20(33.3)	57(95.0)	3.00(0.67)
MANAGEMENT	Administration, block council, and student affairs dealt with student problems closely during the block, made efforts to develop the block and established proper communication.	1(1.7)	1(1.7)	10(16.7)	21(35.0)	24(40.0)	57(95.0)	3.00(0.90)
VALUES	I felt I was in a competition in this block.	13(21.7)	19(31.7)	16(26.7)	4(6.7)	4(6.7)	56(93.3)	1.00(1.14)
SELF LEARNING	There was enough time in the block for independent/free study.		9(15.09)	12(20.0)	17(28.3)	18(30.0)	56(93)	3.00(1.07)
GENERAL EVALUATION	I gained basic understanding about the topics in this block.		3(5.0)	4(6.7)	23(38.3)	26(43.3)	56(93.3)	3.00(0.82)
	I know what else I have to learn at the end of the block.		5(8.3)	6(10.0)	20(33.3)	25(41.7)	56(93.3)	3.00(0.95)

*It was an amazing, perfect block. I fully learned a new language. It was perfect.*

Theme-2-Gains from the process

*I believe I improved by developing greater empathy. I think the program develops awareness towards the disabled.*

*This program raised the awareness of those around me. Family and friends also wanted to learn words in daily use so that they could greet hearing impaired individuals on public transport.*

*Hearing impaired individuals are greatly neglected within our society. I think we should reintegrate them into society.*

*This block offered me an educational process in which I had the most fun, which I was pleased to attend and which I thought gave me the most in my area of study.*

*The Socratic discussion showed me that there were different viewpoints, whereas I used to think that everybody thought in the same way as me.*

*Through psychodrama, I noticed how funny and creative some of my fellow students were in reality. These were people with whom I had not had any communication and whom I was prejudiced against.*

Theme-3- Useful and educational learning methods

*For most of us this was the first Socratic discussion in which we had participated. It was good that our thoughts were given importance and we were listened to.*

*I learned more from the discussion than from the theoretical lectures.*

*I will never forget the experience of the sharing session. I might not have understood them otherwise...*

*It was good that we enacted patient-physician interviews, as it made everything more meaningful.*

*The festival was a wonderful activity. We both learned and taught. It showed us that there was a different perspective: creativity.*

Theme-4-Useful learning content apart from theoretical lectures

*The theoretical medical lectures were unnecessary. We had already heard some of them in the other blocks.*

*Some of the presentations we have seen in the sensory block, for example 'How do I hear and why I do not.*

*Theoretical lessons seemed to me more difficult.*

The average block assessment score of the students was

88.39±0.76 at the end of the block. The mean examination results were; theoretical examination 78.36±5.84; skills examination 93.24±3.07 (min-max: 79.63-98.65); portfolio examination 91.32 ± 7.24 (min-max: 70.00-100.00).

The students scored the level of contribution of the block to the competence areas of professionalism as 8.45±1.64, medical knowledge and understanding as 7.72±1.66, clinical skills as 7.92±1.99 and high-level skills as 8.09±1.52.

## Discussion

The programs referred to in the literature are often included in the curriculum as an elective. For example, the *Deaf Community Training (DCT) Programme* (The University of California/San Diego), is included as an elective course in the first two months of the first year of the "Cancer Control Curriculum". The *Deaf Strong Hospital (DSH) Programme* (The University of Rochester School of Medicine and Dentistry) is organized as an extra-curricular workshop [26, 27]. Programs have been seen to range from a 3-hour workshop to a 2-year longitudinal program [26-29]. The CoHHP&TSL elective program of this study was a 4-week educational program in either the spring or fall semester, just as all the other elective programs. The program was taken by 2nd year students.

Universities in Turkey were given written notification by the Higher Education Board (Yüksek Öğretim Kurumu; YÖK) that from 2013, programs related to TSL were to be taught as elective courses [19]. However, there was no clarification on the matter of who was to deliver the training and the program to be used and teaching methods were not developed [25]. In our faculty, a 5-day TSL awareness course in 2012-2013 was attended voluntarily by medical students and as the student interest and satisfaction made it necessary to include sign language education in the formal curriculum. The CoHHP&TSL program was designed to be included as elective blocks in 2013-2014. Even if the Board supports the need for a program to be designed, the starting point of the program is independent of that decision. The program was prepared in response to the institutional and educational need based on national and international studies.

Differences are seen in the content, methods and design of the programs referred to in the literature. In a DCT training program, fellows participate in a deaf culture training program firstly, and then they complete American Sign Language (ASL) classes and continue with a residential ASL/deaf culture immersion summer program. Students complete their mandatory research projects on a topic

related to the Deaf community and take fourth year rotations where they interact with the Deaf community®. In the DSH program, the deaf volunteers using ASL are instructors. The students with previous deaf culture awareness training are separated into groups and role-reversal exercises (scenario-based role-play) and small group debriefings are applied [27].

The Deafness and *Hearing Impairments (D-DHI)* Dalhousie University/Canada, workshops consist of six lecture sessions (The deaf, hard-of-hearing, and late-deafened, the patient–doctor relationship, diagnosis, access to medical care, ethics and legal issues, issues for future physicians) and groups with simulated patients [28].

In the framework of *Communication with hearing-impaired patients' (M-CHIP)*, at the University of Münster/Germany, groups were formed with the aim of following up the evaluation made by students after taking the medical history of hearing-impaired patients [29].

The CoHHP&TSL was designed with a Plurality approach. The program included a range of educational environments, multiple teaching and testing methods in the collaboration of different disciplines. The deaf culture is a concept defined by the sociocultural features and particularly the beliefs, behavior and expectations of those using sign language. This concept which addresses the learning styles of students was managed in the program with different methods such as presentations giving the opportunity of learning through experience and then reflection, sharing experiences, visits, films, and skills training.

The TSL training included the basic features of TSL, and the ability to differentiate the context, syntax and grammar features of basic signs as basic modular education in the program. In the final week of the program, every student had at least one experience of role-playing an interview using TSL. In addition, by preparing a poster or video as one of the program objectives, these were shared with other medical students, educators and healthcare personnel. As the learning was based on experience, the experience of the students was taken as the basis. Thus the concept of learning was achieved and at a creative level.

The DCT medical school applicants considered the program a unique attraction. DCT students had a significantly higher overall knowledge score than the faculty and the non-DCT students [26]. Of the 99 medical students who participated in the DSH program, 80 described the program as educational, interesting, thought-provoking, and frustrating. Those students who described the experience

as frustrating, further explained that it was frustrating in a positive way. None described it as boring or useless. In the long-term feedback, most of the respondents (37/38, 97%) recalled participating and felt that it was a valuable experience. They appreciated being put “in someone else’s shoes” and enjoyed the opportunity to learn about Rochester’s deaf population (36/38, 95%) [27]. D-DHI students found the workshop both positive and educational. Most students reported that they had not felt well informed on these subjects before the workshop, and all students stated that this type of workshop should be included in their curriculum [28]. M-CHIP students reported that this training in communication skills with hearing impaired patients was a new and useful experience [29].

In the evaluation of the CoHHP&TSL program, student success, student satisfaction and program success were taken as the basis. Students said that the education methods were beneficial, educational and enjoyable. The content was enjoyed by the students and the program was evaluated as useful for their professional career in terms of the development of professionalism, medical knowledge and understanding, communication and high level skills (creativity, decision-making, problem-solving, ability to discuss, research and explain ideas in writing or verbally).

When creating a program it is necessary to consider not only the benefits to the student’s knowledge and skills, but also to the objectives which will contribute to the professionalism, the leadership, the communication skills, the education and the high level skills and capabilities. The skills area for physicians of today has expanded. Cultural and linguistic skills have become more important. The aim of this program was to educate physicians, firstly with awareness and in the long term with cultural and linguistic abilities.

The most important feature of the program is the focus on the medical context. Although the program was conducted to conform with a national program, it included how the deaf receive health care, what they experience in that process, what means of communication are used when in the presentation of healthcare (lip-reading, writing, interpreter etc.), and vocabulary specific to medical situations. Thus a program was created to address the professional needs of the participants.

The strong aspects of the program are that it would be wrong to look at this program only as sign language education. In the CoHHP&TSL program design, national and international medical education was taken into consideration,

relevant programs were reviewed and compared and it was demonstrated to be a program containing the understanding of multiple aims, content, methods, testing and disciplines. The aim of this program was for medical students to be aware of disability and in particular to be aware of deaf culture and to establish empathy and gain the basic skills which would enable them to communicate with these patients in the presentation of healthcare. This program can be said to be the only medical elective program in Turkey, which is formal (credits are applicable). Platforms where the problems related to healthcare institutions can be explained are important. This program establishes a connection between medicine and the community and provides the opportunity of creating collaborative projects. Another strong aspect of the program is the partnership between the Deaf Association and the Federation. This collaboration provides a contribution by sharing experiences by participating in the forums of the hearing impaired community program.

The two most important structures of language teaching are comprehension and creative skills. For students to gain these skills, we aimed to determine an element included in the objectives at the end of the program. Included in these elements were community works from a hearing impaired person's viewpoint, such as poems and songs which used sign language and functions where the deaf had experienced difficulties such as public spots, role-play, reports and narratives. The demonstration in the final week of the study program was presented in an open forum to all medical faculty members.

Limitations of the program include that there are studies which have suggested that as the communication formed with signed words is in an order conforming to the grammar structure of spoken Turkish, is 'signed Turkish' [16, 25], TSL education differs because TSL structure is not the same as all other structures of languages as including Turkish, and this may not be considered in all sources. This program was selected as the Ministry of Education program in respect to content, method, certification and qualified instructors. This may be open to criticism.

The aims of the development of the program may not have been sufficient in terms of the effectiveness of the simulated patient in the hearing-impaired patient-physician interview using TSL, and in terms of developing different perspectives from a single scenario. The use of different scenarios with different communication strategies, such as an interpreter, writing and lip-reading, which may be used by the hearing impaired, would strengthen the program. In addition, to be able to systematically sustain the effectiveness, it is

necessary to have a pool of simulated patients using TSL and to train these individuals in the simulation process. Taking student feedback, national requirements and changes into consideration, we aimed to develop the program to be included in medical education, to conform to the spiral curriculum and most importantly to create awareness at student, instructor and personal level.

Cooperation with people who work in this field, obtaining consultancy and using different sources will provide the opportunity to ensure the continuity and quality of the program [30-32].

### Conclusion

At the end of this program, medical students had gained awareness of disability in general and of hearing impairments in particular. With the training given in this program, the students learned the TSL alphabet, which is used to communicate with the deaf in Turkey and they also learned about deaf culture and methods of communication with the hearing impaired. The students reached a level of basic communication with the hearing impaired. The program contributed to the professionalism, communication skills and high level skills of the students. Our findings show that the effect of the program on learning was highly positive and student feedback is encouraging for the continuity of the program.

Culturally and linguistically competent modern physicians will provide a better healthcare service for the hearing impaired with a more humanistic and more egalitarian approach. As a result of this study, we recommend that these types of programs are included in the curriculum of medical schools.

### Acknowledgments

The authors wish to thank TSL educators Mehmet Akbulut, Gülsans Rendecioglu and Mustafa Ersoy, simulated patients and guests that attended experience sharing sessions, and the students, all of whom contributed to the development and implementation of the block.

### References

1. World Health Organisation. Action Plan "Better health for persons with disabilities" Frequently Asked Questions. 2015 <http://www.who.int/disabilities/policies/actionplan/faq.pdf?ua=1> (Accessed 20 April 2015).
2. World Health Organisation. World Report on Disability. 2011. [http://whqlibdoc.who.int/publications/2011/9789240685215\\_eng.pdf](http://whqlibdoc.who.int/publications/2011/9789240685215_eng.pdf). (Accessed 20 April 2015).

3. World Health Organisation. Promoting ear and hearing care through CBR Community-Based Rehabilitation. 2012. <http://www.who.int/pbd/deafness/news/CBREarHearingCare.pdf>. (Accessed 20 April 2015).
4. Guidelines for Reporting and Writing about People with Disabilities. 2008. <http://www.rtcil.org/products/RTCIL%20publications/Media/Guidelines%20for%20Reporting%20and%20Writing%20about%20People%20with%20Disabilities.pdf>. (Accessed 20 April 2015)
5. WHO. Deafness and hearing loss. 2015. <http://www.who.int/mediacentre/factsheets/fs300/en/>. (Accessed 22 April 2015)
6. WHO global estimates on prevalence of hearing loss. 2012 [http://www.who.int/pbd/deafness/WHO\\_GE\\_HL.pdf](http://www.who.int/pbd/deafness/WHO_GE_HL.pdf) (Accessed 24 April 2015)
7. Türkiye Özürlüler Araştırması-2002, ileri analiz raporu. Ankara: Başbakanlık Devlet İstatistik Enstitüsü, 2005.
8. Türkiye İstatistik Kurumu. Engelli İstatistikleri. 2010. [http://www.tuik.gov.tr/PreTablo.do?alt\\_id=1017](http://www.tuik.gov.tr/PreTablo.do?alt_id=1017). (Accessed 2015 April, 24).
9. Türkiye İstatistik Kurumu. Özürlülerin Sorun ve beklentileri araştırması. 2011. <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=6370>. (Accessed 2015 April, 26).
10. Kemaloğlu YK. Ülkemizde İşitme Engellilerin Nüfusu Ne Kadardır? [http://engelsiz.karatekin.edu.tr/e\\_isit/dosya/EK-01.pdf](http://engelsiz.karatekin.edu.tr/e_isit/dosya/EK-01.pdf). (Accessed 2015 April, 26).
11. Barnett S. Communication with deaf and hard of hearing people: A guide for medical education. *Acad Med* 2002; 77:694-700. doi: 00001888-200207000-00009
12. Steinberg A, Barnett S, Meador, HE, Wiggins, EA, Philip Z. Health Care System accessibility. Experiences and perceptions of deaf people. *JGIM* 2006; 21: 260-6. doi: 10.1111/j.1525-1497.2006.00340.x
13. Lezzioni LI, O'day BL, Killeen M, Harker H. Communicating about health care: observations from persons who are deaf or hard of hearing. *Ann Intern Med* 2004;140: 356-63. doi:10.7326/0003-4819-140-5-200403020-00011.
14. Chaveiro N, Barbosa MA, Porto CC. Literature revision about the attendance of deaf patient by health professionals. *Rev Esc Enferm USP* 2008; 42: 578-83. doi: 10.1590/S0080-62342008000300023.
15. Hoang L, LaHousse SF, Nakaji MC, Sadler GR. Assessing deaf cultural competency of physicians and medical students. *J Cancer Educ* 2011; 26: 175-82. doi: 10.1007/s13187-010-0144-4.
16. Kemaloğlu YK, Kemaloğlu PY. The history of sign language and deaf education in Turkey. *Kulak Burun Boğaz İhtis Derg* 2012; 222: 65-76.doi: 10.5606/kbbihtisas.2012.013.
17. Kemaloğlu YK. Türkiye'de işitme kayıplarının ve işitme engelinin genel görünümü Türkiye Klinikleri JENT Spec Top 2012; 5:1-10.
18. Türk Dil Kurumu. Türk İşaret Dili Sözlüğü. [http://tdk.gov.tr/index.php?option=com\\_content&view=article&id=264](http://tdk.gov.tr/index.php?option=com_content&view=article&id=264). (Accessed 2015 April 26).
19. Yüksek Öğretim Kurulu. Engelli Öğrenciler için alınan kararlar. 2013. <http://www.yok.gov.tr/web/ogrenci/kararlar>. (Accessed 2015 April 26).
20. Bligh J, Brice J. Course design. In: Cantillon P, Wood D (Editors). *ABC of Learning and Teaching in Medicine*. 2nd Edition. Cambridge, UK:Wiley Blackwell, 2010.
21. Bates R. A critical analysis of evaluation practice: the Kirkpatrick model and the principle of beneficence. *Eval Prog Planning* 2004; 27: 341-47. doi:10.1016/j.evalprogplan.2004.04.011.
22. Bieger GR, Gerlach GJ. *Educational Research. A practical approach*. New York:Delmar Publishers, 1996.
23. Harden R M, Davis M H. AMEE Medical Education Guide No. 5. The core curriculum with options or special study modules. *Med Teach* 1995; 17: 125-48. doi: 10.3109/01421599509008301.
24. Tıp Fakültesi 2015-2016 Akademik Takvimi. <http://www.okm.omu.edu.tr/> (Accessed 26 April 2015).
25. Kemaloğlu YK. Konuşamayan işitme engellilerin (sağır)ların tarihi. *KBB ve BBC* 2014; 22: 14-28. doi: 10.4274/Tjh.2012.0070.
26. Farber JH, Nakaji MC, Sadler GR. Medical students, deaf patients, and cancer. *Med Educ* 2004; 38:1181-202. doi: 10.1111/j.1365-2929.2004.02010.x.
27. Thew D, Smith SR, Chang C, Starr M. The Deaf Strong Hospital Program: A model of Diversity and Inclusion Training for first year medical students. *Acad Med* 2012; 87:1496-500. doi: 10.1097/ACM.0b013e31826d322d.
28. Lock E. A workshop for medical students on deafness and hearing impairments. *Acad Med* 2003; 78: 1229-34. doi: 00001888-200312000-00006.
29. Deuster D, Matulat P, Schmidt CM, Knief A. Communication skills for interviewing hearing-impaired patients. *Med Educ* 2010; 44:1117-147. doi: 10.1111/j.1365-2923.2010.03822.
30. Arık E. *Current directions in Turkish Sign Language research*. UK:Cambridge Scholars Publishing, 2013
31. Dikyuya H, Zeshan U. Türk işaret dili, birinci seviye. 1. Baskı. Nijmegen: The Ishara Press, 2008.
32. Makaroglu B, Dikyuya H. *Yabancı Dil olarak Türk İşaret Dili (A1-A2 Düzeyi) Öğrenci Kitabı*. Ankara:Ankara Üniversitesi Yayınları, 2015.