Original Article

# Communication in chest diseases; cohort analysis on medical faculty students taking communication course in health

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## Abstract

**Aim:** The aim of this course was to evaluate the effectiveness of the 'Communication in Health' course given at the Faculty of Medicine and the effect of taking this course on patient communication and exam success in clinical education processes, in particular for chest diseases internship in medical students.

**Materials and Methods:** In this cohort-designed study, 102 volunteer students who received medical communication lessons in the third grade and Chest Diseases internship in the fourth grade in medical school, were evaluated. The Communication Skills Scale (CSS) was applied as a pre-and post-test in health communication lesson and written exam, practical exam, and patient presentation for clinical internship in chest diseases.

**Results:** The mean pre-test score for communication lessons was found to be 58.77 ± 8.09 and the mean post-test score was found to be 94,46±5,40 in the students who had a mean age of 21.35 ± 1.56 years. While the mean CSS pre-test score was found to be 94.37 ± 9.42, the mean post-test score was found to be 105.53 ± 8.02. It was found that there was an increase in the CSS scores and in the subscale scores of communication principles and basic skills, effective listening and non-verbal communication, self-expression, and willingness to communicate in the students who received "communication in health" lesson, and there was a statistically significant difference. In addition, we found a statistically significant positive correlation between the students' chest disease course grades and the total scores of the CSS scale.

**Conclusion:** It is consider that there is an increase in the communication skills of medical students who take "communication in health" lessons, and this increase also contributes to the clinical education processes specifically in terms of chest diseases internship. Communication skills and drama lessons should be given in medical education.

**Keywords:** Chest Diseases; communication skill; medical education; medical students

## INTRODUCTION

Medicine; It is a profession that requires continuous learning and self-improvement throughout life. In 1948, the World Health Organization (WHO) defined health as a state of complete physical, mental, and social well-being and not merely the absence of disease and disability (1). Holistic medicine; defines a model in which all physical, emotional, social, and spiritual dimensions are taken into account for a desired level of health. Raising physicians who are concerned and communicative besides a good medical education, currently increases professional satisfaction and work peace for physicians as well as revealing the problems of patients and producing effective solutions (2, 3). Marshall McLuhan defined the world we live in as a global village and predicted the transformation of today's communication life to digital status (4). In parallel with the digitalized world, technological development accompanied the provision of health services. In addition to communicating with the patient, medicine is expected to be intertwined with technology and to explain this technology to patients and their relatives in an understandable way, to anticipate possible obstacles to communication, and to take precautions. Communication: the main elements of human interactions include (5), the message exchange between the two units (6), generating, transmitting and interpreting information (7) and a process (8). Communication is not an innate talent, it can be learned and developed in the processes of life (9). As in human relationships, patient-physician communication is also important. The characteristics

of both sides, expectations, opportunities offered by the health system, and sociocultural conditions of the period, are the variables that affect communication (10). With correct patient-physician communication, 70% of the diseases are diagnosed and supported by examination, tests, and imaging (11). This provides obtaining positive results from medical applications by making the diagnosis and increasing treatment compliance of the patient (12). Achieving successful results in health services will decrease healthcare spending and lead to social justice and equality of opportunity (13). The aim of this study was to evaluate the effectiveness of the elective "communication in health" lesson given in the third year of the medical school and the effect of taking this course on patient communication and exam success in clinical education processes in the context of chest diseases internship.

## MATERIALS and METHODS

### Research Design
This research is a cohort designed the study It is the study design in which the sample is monitored prospectively and defines how much the causes affect the result.

### Site of Research
The study was conducted at the medical faculty of Harran University. In Harran University Faculty of Medicine, communication lesson is given as an elective course in the pre-clinical third year. With the "communication in health" lesson, it is aimed for students to be able to define communication, to define verbal-non-verbal-body language elements, to listen effectively, to reveal communication barriers, to empathize, to recognize the physician-patient relationship, physician-physician relationship, and ethical behavior, to recognize mobbing and to be aware of physician-patient rights, to gain communication skills related to patients with special needs.

### Sample
The sample of the research consisted of 102 students who took "communication in health" elective courses in the spring semester of 2017-2018 academic year and fall and spring semesters of 2018-2019 academic year, did a chest diseases internship in 2018-2019 academic year, and 2019-2020 academic year and volunteered to participate in the study. The students were informed about the study by the researcher and asked to sign informed consent forms. As al students who took the course volunteered to participate in the study, the population constituted the study sample.

### Data Collection Tools
The data collection form consisted of three parts. The first part consists of the questions related to students' age, gender, and whether they have received any education related to communication before. The second part consists of 20 questions that measured students' knowledge on health communication lessons. The third part consisted of the CSS questions. CSS, which is a self-report scale, was developed by Korkut Owen and Bugay (2014) (14).

The scale consists of 25 questions and 4 sub-dimensions (Sub-dimensions of the scale; Communication Principles and Basic Skills ", " Self-Expression ", " Effective Listening and Nonverbal Communication ", " Willingness to Communicate "). The score that can be obtained from the scale varies between 25 and 125. As the score increases, the individual's communication skills are improved.

### Data Collection
20 pre-test questions related to the elective course "communication in health" and CSS questions were applied to the students at the beginning of the course. At the end of the lesson, questions and CSS were re-applied and post-test scores were recorded. Chest diseases internship score consists of three stages including written exam including open-ended questions, bed-side practical examination, and a patient presentation. Chest diseases internship grades of students who took the elective courses of "communication in health" in the spring semester of the 2017-2018 academic year, in fall and spring semesters of 2018-2019 academic year, and who had a chest diseases internship in 2018-2019 academic year and 2019-2020 academic year, were recorded.

### The Ethical Dimension of the Study
For this research, permission was obtained from Harran University Medical School Non-Interventional Ethics Committee (04.08.2018, 10th session, and Decision no 18/10/22).

### Statistical Analysis
Using the IBM 23.0 program, the students' sociodemographic properties, if they received any training on communication and mean pre-test - pos-ttest scores and the percentage and frequency distributions of the relevant questions were given. The relationship of the mean scores of the students before and after the communication lesson with the difference between the CSS scores of the students before and after the communication lessons was compared with the paired sample t test. After the students' communication scale score and chest diseases course exam scores were tested with normality tests, they were compared with the Pearson correlation test.

## RESULTS

Forty-nine of 102 students were female and 51% were male. The mean age of the students was found to be 21.35 ± 1.56 years. It was found that 3.9% (n=4) of the students had previously taken a course on communication and 96.1%(n=98) had not taken any course on communication (Table 1).

Table 2 shows the mean scores of the students before and after the Communication course and the mean CSS and subscale pre-test and post-test scores before and after the Communication course. The mean score of the students was found to be 58.77 ± 8.09 before the communication course and 94.46 ± 5.40 after the communication course. The mean total CSS score of the students was found to be 94.37 ± 9.42 before the communication course and 105.53 ± 8.02 after the communication course.

| Table 1. Students' level of education, age, gender and status of take lesson about communication | | |
|---|---|---|
| | n | % |
| **Gender** | | |
| Female | 50 | 49.0 |
| Male | 52 | 51.0 |
| **Age (Min- Max)** | **Mean =** 21.35 ± 1.56 (19-25) | |
| **Communication lesson taking status** | | |
| Yes | 4 | 3.9 |
| No | 98 | 96.1 |

The mean Communication Principles and Basic Skills (CPBS) subscale score was found to be 38.47 ± 4.31 before the Communication course and 43.46 ± 2.79 after the Communication course. The mean SE subscale score of the students was found to be 14.95 ± 2.27 before the Communication course and 16.89 ± 1.72 after the Communication course. The mean ELNC subscale score of the students was found to be 22.50 ± 2.86 before the Communication course and 24.95 ± 2.64 after the communication course. The mean WTC subscale score of the students was found to be 18.44 ± 2.80 before the Communication course and 20.23 ± 2.47 after the Communication course (Table 2).

| Table 2. Distribution of Students' Pretest-Posttest and IBO scale score averages | | |
|---|---|---|
| **Point** | **Minimum – Maximum** | **X± SD** |
| Before the communication lesson Exam score | 30-75 | 58.77 ± 8.09 |
| After the communication lesson Exam score | 75-100 | 94.46 ± 5.40 |
| IBO Toplam Pre -Test | 67-113 | 94.37 ± 9.42 |
| IBO Toplam Post -Test | 87-119 | 105.53 ± 8.02 |
| ITTB Pre -Test | 22-47 | 38.47 ± 4.31 |
| ITTB Post -Test | 38-49 | 43.46 ± 2.79 |
| KIE Pre -Test | 8-19 | 14.95 ± 2.27 |
| KIE Post -Test | 11-19 | 16.89 ± 1.72 |
| EDSOI Pre -Test | 15-29 | 22.50 ± 2.86 |
| EDSOI Post -Test | 18-30 | 24.95 ± 2.64 |
| IKI Pre -Test | 11-24 | 18.44 ± 2.80 |
| IKI Post -Test | 15-24 | 20.23 ± 2.47 |
| Communication Skills Scale (İBO); Communication Principles and Basic Skills (IITB); Self Expression (KIE); Effective Listening and Nonverbal Communication (EDSOI); Willingness to Communicate (IKI) | | |

| Table 3. Average score of students' before and after the communication lesson | | | | | |
|---|---|---|---|---|---|
| | Mean±SD | SE | %95 Confident ınterval | t test | p |
| Before the communication lesson Exam score After the communication lesson Exam score | 35.68±7.99 | 0.79 | 34.11-37.25 | 45.094 | 0.000 |

| Table 4. Relationship of before and after communication lesson IBO scale points | | | | | | |
|---|---|---|---|---|---|---|
| | | Mean±SD | SE | %95 Confident İnterval | t test | p |
| **IBO scale total score** | Before communication lesson After communication lesson | 11.16 ± 3.45 | 0.34 | 10.48-11.84 | 32.635 | **0.000** |
| **ITTB subscale score** | Before communication lesson After communication lesson | 4.99 ± 3.30 | 0.32 | 4.34-5.63 | 15.265 | **0.000** |
| **KIE subscale score** | Before communication lesson After communication lesson | 1.94 ±1.50 | 0.14 | 1.64-2.23 | 13.059 | **0.000** |
| **EDSOI subscale score** | Before communication lesson After communication lesson | 2.44 ± 1.74 | 0.17 | 2.09-2.78 | 14.138 | **0.000** |
| **IKI subscale score** | Before communication lesson After communication lesson | 1.79 ±1.32 | 0.13 | 1.53-2.05 | 13.700 | **0.000** |

The mean test score of the students before and after the communication course was found to be 35.68 ± 7.99 (95% CI- 34.11 / 37.25). There is a significant difference between the mean score before the communication lesson and the mean score after the communication lesson (p <0.000) (Table 3).

As can be seen in Table 4, the difference between the CSS scores of the students who took the communication lesson was found to be 11.16 ± 3.45 (95% CI / 10.48-11.84) and this difference was found to be statistically significant.

It was found that the difference (4.99 ± 3.30% 95% CI / 4.34-5.63) between the ITTB subscale scores of the students, who took communication lesson, before and after the communication lesson, was statistically significant.

It was found that the difference between the SE subscale scores of the students, who took communication course, before and after the communication lesson, was statistically significant (1.94 ± 1.50% 95 CI / 1.64-2.23).

It was found that the difference (2.44 ± 1.74% 95 CI / 2.09-2.78) in the ELNC subscale scores of the students before and after the communication lesson, was statistically significant.

It was found that the difference (1.79 ± 1.32% 95 CI / 1.53-2.05) in the WTC subscale scores of the students before and after the Communication lesson, was statistically significant (Table 4).

A statistically significant positive correlation was found between the scores obtained from the Chest Diseases course exams and the mean total CSS scores (Table 5).

| Table 5. Correlation of Students' Communication Scale Score and Chest Disease Internship Exam Score | | |
|---|---|---|
| | | Chest Diseases Internship Exam Score |
| **IBO scale total score** | r$_p$ | 0.198 |
| | p | **0.046** |

## DISCUSSION

The mean exam score of the students was found to be 58.77 ± 8.09 before the communication lesson and 94.46 ± 5.40 after the communication lesson. While the mean CSS pre-test score was found to be 94.37 ± 9.42, the mean post-test score was found to be 105.53 ± 8.02. A statistically significant difference was found between the CSS pre-test and post-test scores of the students (95% CI / 10.48-11.84). We found a statistically significant positive correlation between the students' chest disease course exam grades and the total CSS scores.

Effective communication is considered one of the most important skills of a physician (15,16). The problems experienced in the patient-physician relationship can be reduced by bringing communication skills as well as knowledge during the training of candidate physicians (17,18). In a study conducted among various occupational groups, it was reported that physicians had more communication skills compared to other occupational groups (19). Among the medical branches, empathy and communication skills are higher in the groups of physicians who have face to face contact with the patient including paediatricians and gynaecologists compared to those in groups such as radiology (19). In a study conducted in Japan, it was reported that there was a positive increase in rates of presentation and rates of commitment to physicians who received communication training (20). In our study, we concluded that the communication scores of the medical faculty students who took communication lessons increased at the end of the education process, that there was an improvement in their communication skills and basic skills, effective listening and nonverbal communication and they were willing to express themselves and communicate. This result we obtained proves that communication-related education affects the patient-physician relationship positively. Studies have reported that learning appropriate communication techniques with pre-clinical communication lessons increases clinical success (21,22).

Communication started with the existence of human beings and increased with the necessity of modern life. There are many studies in the literature evaluating communication skills using different scales in different occupational groups (23-32). The common point of these studies is that all training on communication increases individuals' wishes and awareness of communication. In our study in which we used CSS and its subscale groups developed by Korkut Owen and Bugay (2014), an increase in the mean score was found similar to the literature. This finding supports the fact that the preclinical communication courses given in medical faculties, increase the success in clinical practice lessons.

According to some researchers, communication skills include the sensitivity to verbal and non-verbal messages, the ability to listen effectively, and react effectively, while some other researchers think that it includes verbal, sound-based, bodily, tactile, motion-containing messages and various mixtures of these messages. In the literature, there are studies emphasizing that communication skills consist of active listening verbal communication, and nonverbal communication (14). In our study, the students' CPBS scores were 38.47 points in the pretest, and they showed a significant increase in the posttest (43.46 points). This result we obtained proved that the "communication in health" lesson given to medical students increased the skills of the students regarding the basic skills of communication. In the study of Owen and Bugay (2014), the mean CPBS score of teacher candidates was found to be 38.86 in males and 41.55 in females (14). In another study conducted with theology students, it was reported that the mean CPBS score of the students was found to be 40 (33). The fact that there was no study comparing communication skills with pre-test and post-test measurements in the literature limited this and subsequent subscale dimension discussion of our study.

Source constitutes the first step of communication (34). Good communication is only possible if the source can express itself correctly. In our study, it was found that the mean SE score of the students was 14.95 in the pre-test, 16.89 in the post-test, and showed a significant increase. Owen and Bugay (2014) reported that the mean SE score was 15.58 in men and 16.90 in women (14). Arıcı and Angın (2017), on the other hand, found that the mean SE score of the study group was 15.42. Akgün and Çetin (2018), on the other hand, reported that those who received communication courses could express themselves better than those who did not receive this course in a study in which they examined the communication skills and empathy levels of university students (35). Our conclusion, which was compatible with the literature, showed that education or lessons about communication contributed to students' self-expression skills. We think that this will contribute to the communication processes in the performance of the profession and to provide better service.

Effective listening and non-verbal communication are important complementary in terms of accurate and full comprehension/expression of individuals' messages (36). In our study, the mean pre-test ELNC score was 22.50, the mean post-test score was 24.95, and a significant increase was observed in the mean ELNC scores. Owen and Bugay (2014) reported that the mean ELNC score was 19.72 in men and 20.97 in women (14). Arıcı and Angın (2017) found that the study group's mean ELNC score was 23.95. In the study of Akgün and Çetin (2018), it was found that university students who were trained in communication, used more effective listening and non-verbal communication methods compared to those who did not.

Communication requires that one knows the individual's inner world, emotions, thoughts, and attitudes well and understands what they mean, and evaluates the individual's behaviour with realism (6). In our study, the pre-test mean score of the students was found to be 18.44, while the mean WTC score in the post-test showed a significant increase (20,23). Owen and Bugay (2014) reported that the mean WTC score was 18.98 for men and 21 for women (14). Arıcı and Angın (2017), on the other hand, found that the mean WTC score of the study group was 18.95. In the study of Akgün and Çetin (2018), they reported that university students who were educated on communication were more willing to communicate compared to those who were not educated. These results prove the effect of communication training on communication processes.

Physicians are expected to have the ability to recognize patients with communication disorders and meet their needs besides academic success and openness to communication (36). In a study designed to determine the need for communication lessons during medical education in Brazil and to make a consensus, 74 Family Physicians were evaluated and it was reported that 66.7% of these physicians had to be supported in terms of communication skills (37). In a study conducted in Bursa in which 146 interns were evaluated, 84.2% of sixth-grade students thought that lessons should be given for communication skills; it was reported that 91.8% found themselves insufficient in terms of various skills (38). In our study, it was found that the total score and subscale dimension scores of medical students obtained before communication lessons increased after the education. However, the correlation between the scores of the students in the chest diseases clinical internship exams and their scale scores in our study, proved that the "communication in health" course also increased academic success.

## LIMITATIONS

This study was carried out on the students who took the "communication in health" (elective) course and had a chest diseases internship in the third year. It was an important limitation of the study that the students' success was followed up and recorded only for chest diseases, and the success levels in other clinical internships were not measured. Although there are many descriptive studies related to communication in the literature, our study was the only cohort study comparing subscale dimensions with the scores before and after the communication lesson training, and this was a significant limitation in terms of the discussion section.

## CONCLUSION

In conclusion, the high communication skills of physicians will affect professional success positively. We think that the communication skills, self-expression, effective listening-non-verbal communication and willingness to communicate increase among medical students who take "communication in health" lessons, and this increase contributes to the clinical training processes in terms of chest diseases internship. During the medical education period, communication skills and drama lessons should be given at regular intervals. The communication characteristics of students should be measured after graduation and other variables that affect the process should be examined. Communication sessions should be included in post-graduate in-service training programs and scientific meetings such as seminars, symposiums, and congresses. Socio-cultural activities should be expanded in the professional life of physicians, and participation should be supported.

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